

**5210, 5310,
5410 and 5510
Tractors**



**OPERATOR'S
MANUAL**



**John Deere Augusta Works
OMRE71736 C0**

LITHO IN U.S.A.
ENGLISH

Introduction

Foreword

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages. (See your John Deere dealer to order.)

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine when you sell it.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction of forward travel.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Specification or Identification Numbers section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer

also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

WARRANTY is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate which you should have received from your dealer.

This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise overpowering machines will result in such action.

THE TIRE MANUFACTURER'S warranty supplied with your machine may not apply outside the U.S.

CALIFORNIA PROPOSITION 65 WARNING
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

Identification Views



LV1701 -UN-26AUG97

John Deere 5310 Tractor—Open Station



LV1702 -UN-26AUG97

John Deere 5510 Tractor—Cab

LV,71736,IFCB -19-29AUG97-1/1

Introduction

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John Deere Service Literature Available. . . SLIT-1

John Deere Service Keeps You on the Job

John Deere Quality.	IBC-1
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Safety

Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



DX,ALERT -19-29SEP98-1/1

TS1389 -UN-07DEC88

Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

⚠ DANGER

⚠ WARNING

⚠ CAUTION

DX,SIGNAL -19-03MAR93-1/1

TS187 -19-30SEP88

Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



DX,READ -19-03MAR93-1/1

TS201 -UN-23AUG88

Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



DX,BYPAS1 -19-29SEP98-1/1

TS177 -UN-11JAN89

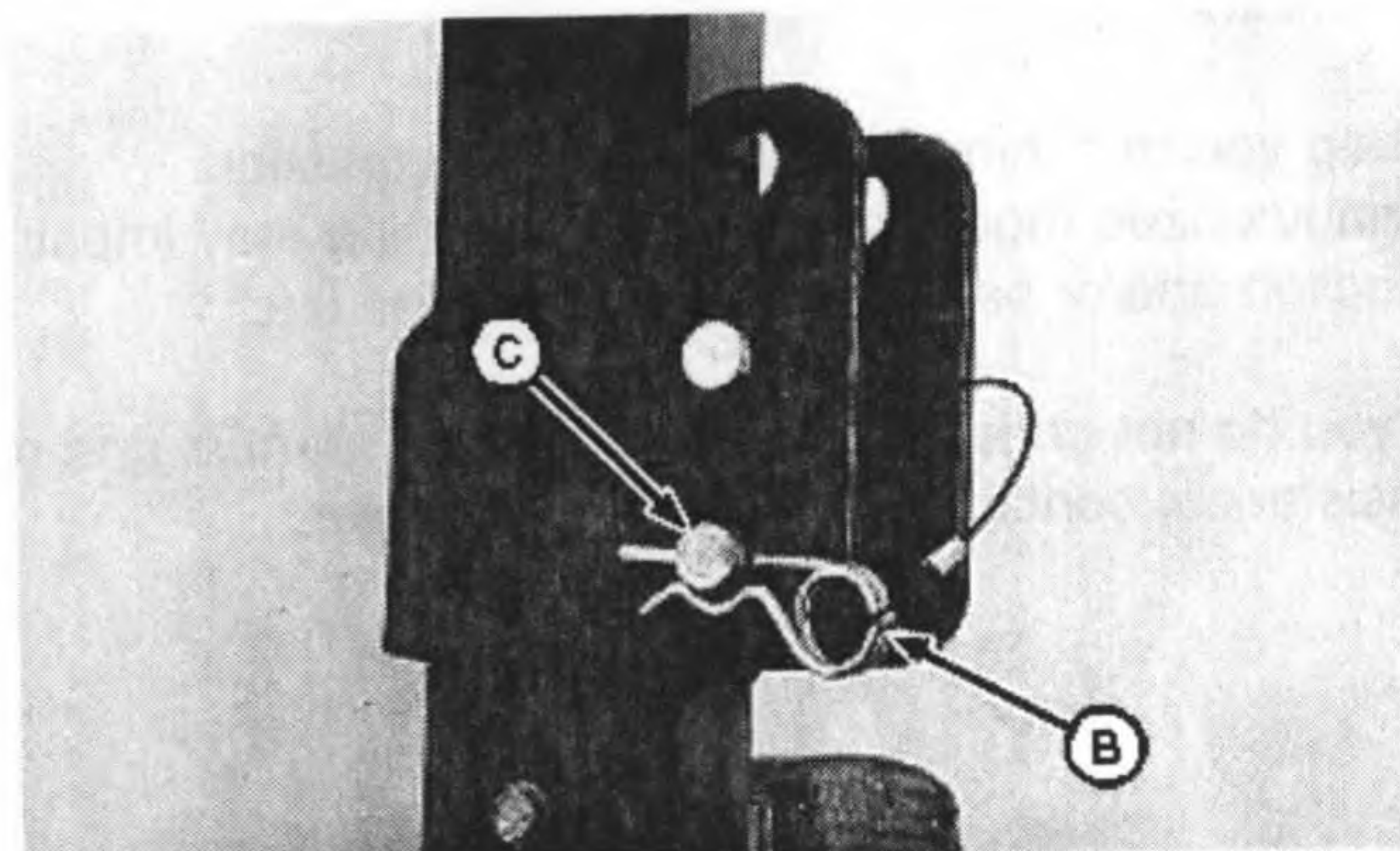
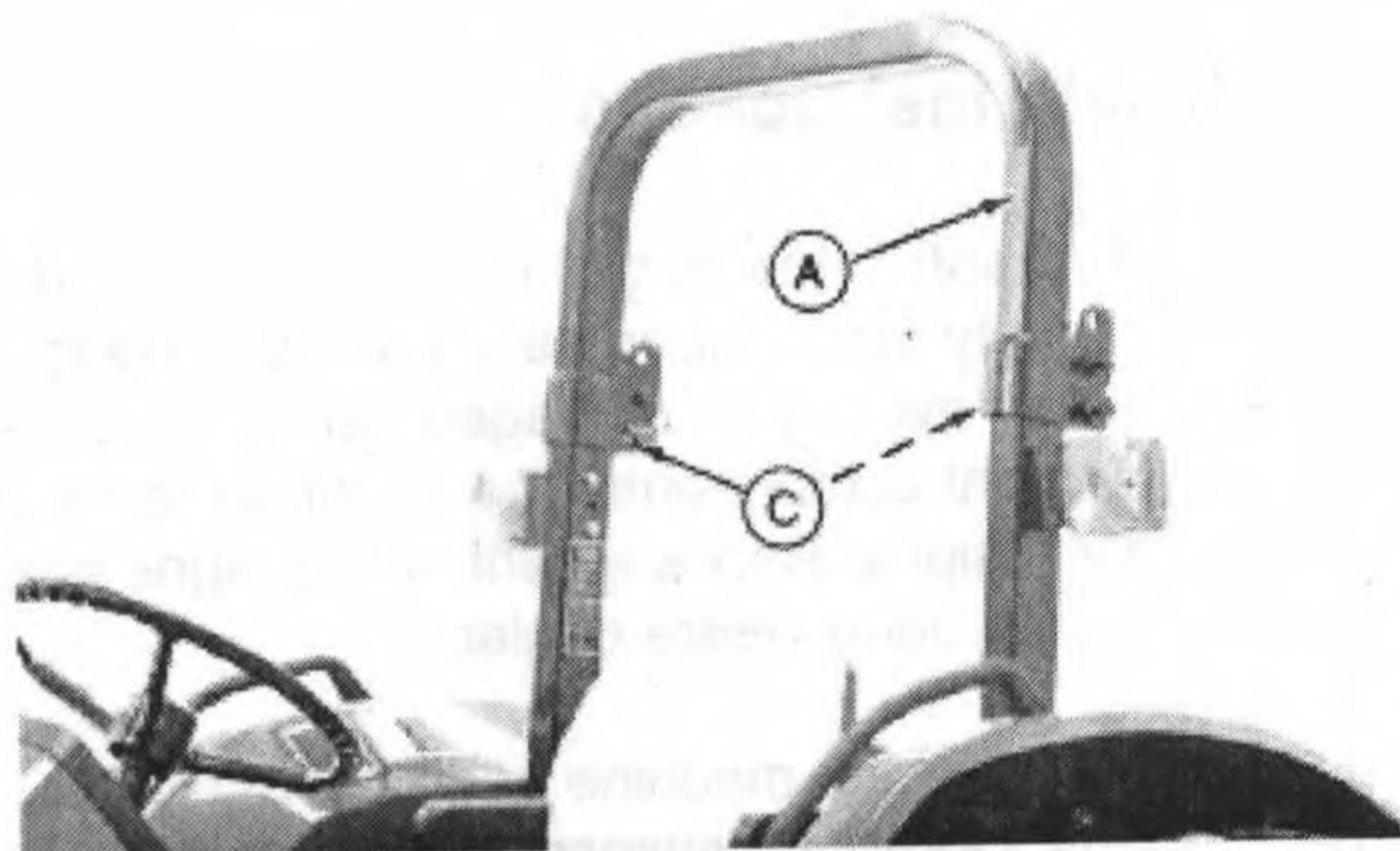
Use Seat Belt and Foldable ROPS Properly—Open Station

When the ROPS is in the "up" or extended position, ALWAYS use your seat belt to minimize chance of injury from an overturn accident.

DO NOT use seat belt when ROPS is folded down.

This tractor is equipped with a foldable Roll-Over Protective Structure (ROPS). The ROPS (A) should be kept in the "up" or extended position (as pictured) with pins (C) retained with quick-lock pins (B), except when it is necessary to fold it for low clearance operations.

- A—ROPS
- B—Quick-Lock Pins
- C—Pins



LV,5010SA,B -19-09SEP97-1/1

TS205 -UN-23AUG88

M47142 -UN-29JAN92

LV1972 -UN-02SEP97

Operate Tractor Safely

Features designed into your tractor make operation safer and let it perform a wide variety of jobs. Use your tractor only for specified jobs it was designed to perform: implement carrier, load mover, remote power source, or transport unit—not a recreational vehicle.

Careless use or misuse can result in unnecessary accidents. Be alert to hazards of tractor operation. Understand causes of accidents and take every precaution to avoid them. Most common accidents are caused from:

- Tractor upsets
- Improper starting procedures
- Crushing and pinching during hitching
- Collisions with other motor vehicles
- Getting entangled in PTO shafts
- Falls from tractors

Avoid accidents by taking the following precautions:

Put transmission in PARK before dismounting. Leaving transmission in gear with engine stopped will NOT prevent the tractor from moving.

Be sure everyone is clear of tractor and attached equipment before starting engine.

Never try to get on or off a moving tractor.

When tractor is left unattended, place in PARK, lower implements to the ground, stop the engine, and remove the key.

⚠ CAUTION

- | | |
|---|--|
| 1. Read Operator's Manual before operating this tractor. | brakes or operating around hazards, on rough ground or steep slopes. |
| 2. Keep all shields in place. | |
| 3. Hitch towed loads only to drawbar to avoid rearward upset. | 8. Couple brake pedals together for road travel. |
| 4. Make certain everyone is clear of machine before starting engine or operation. | 9. Use flashing warning lights on highway unless prohibited by law. |
| 5. Keep all riders off tractor and equipment. | 10. Stop engine, lower implement to ground and shift to "PARK" or set brakes(s) securely before dismounting. |
| 6. Keep hands, feet and clothing away from power-driven parts. | 11. Wait for all movement to stop before servicing machinery. |
| 7. Reduce speed when turning or applying individual | 12. Remove key if leaving tractor unattended. |



M47224A -19-02JUN97

TS276 -UN-23AUG88

LV,5010SA,A -19-06JUN97-1/1

Use Caution on Hillsides

Always wear seat belt with ROPS in upper position.

Avoid holes, ditches, and obstructions which cause the tractor to tip, especially on hillsides. Avoid sharp, uphill turns.

Never drive near the edge of a gully or steep embankment -- it might cave in.

Driving forward out of a ditch or mired condition or up a steep slope could cause tractor to tip over rearward. Back out of these situations if possible.

While mechanical front wheel drive greatly increases traction, it DOES NOT increase stability of the tractor. With mechanical front wheel drive engaged, the tractor can climb steeper slopes but it does not become more stable. When this option is used, extra caution is needed on slopes. Compared to a 2-wheel drive, a front-wheel drive tractor maintains traction on steeper slopes, increasing the possibility of a tip over.

Danger of overturn increases greatly with narrow tread setting, at high speed.

Hitch towed loads only to drawbar. When using a chain, take up the slack slowly.



TS205 -UN-23AUG88

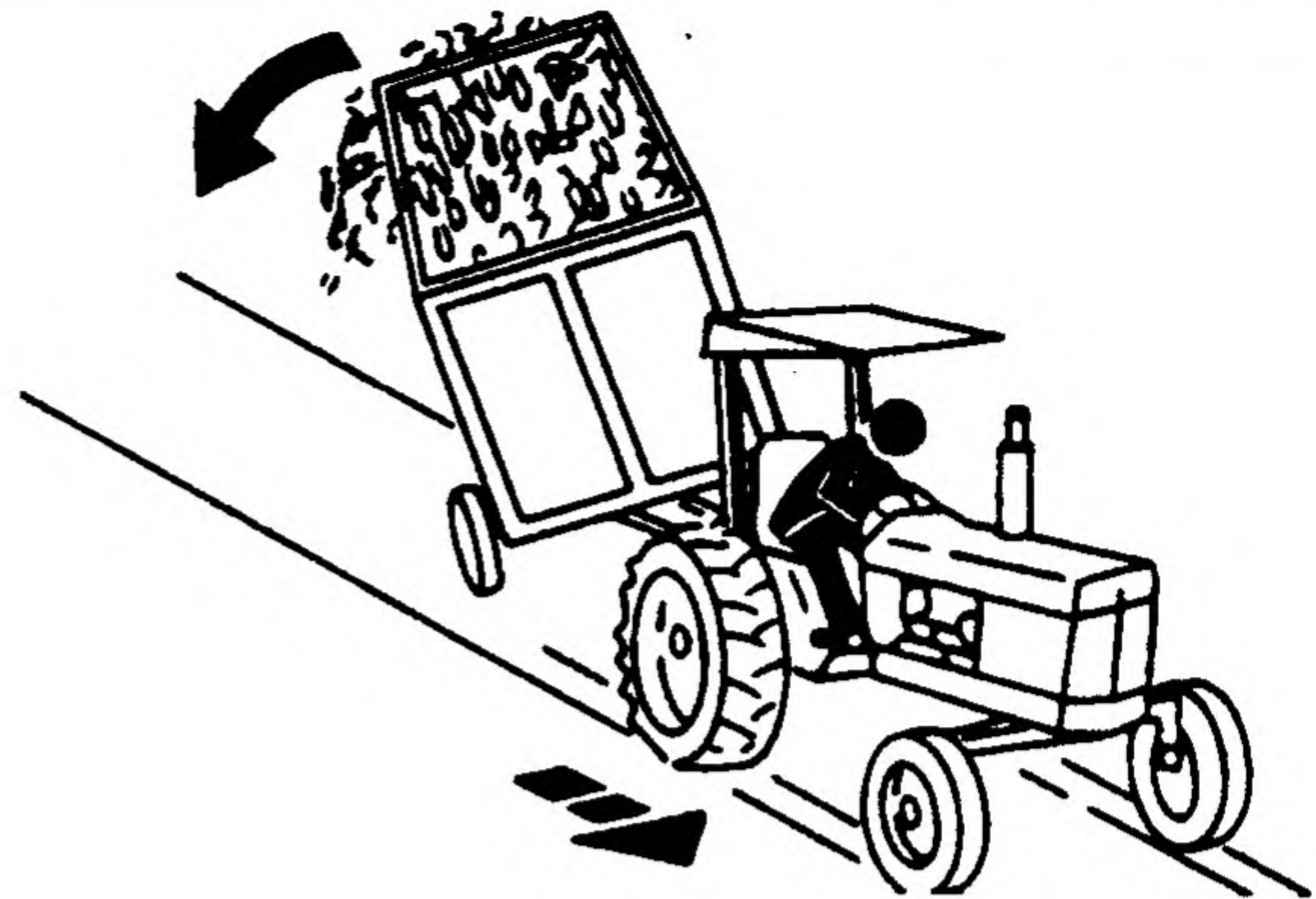
MX,SAIP,CA1 -19-29JUL94-1/1

Shift to Low Gear on Hills

Shift to a low gear before descending a steep hill to improve your control of the tractor with little or no braking. Use engine braking to reduce speed before applying tractor brakes. Run-away tractors often tip over. Never coast downhill.

When driving on icy, wet or graveled surfaces, reduce speed and be sure tractor is properly ballasted to avoid skidding and loss of steering control. For best control, engage mechanical front wheel drive (if equipped).

Additional ballast may be needed for transporting heavy hitch mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.



TS216 -UN-23AUG88

MX,SAIP,B -19-18MAR92-1/1

Avoid Tipping

Always wear seat belt with ROPS in upper position.

Do not drive where machine could slip or tip.

Stay alert for holes, rocks, and roots in the terrain, and other hidden hazards. Keep away from drop-offs.

Slow down before you make a sharp turn.

Use care when pulling loads or using heavy equipment:

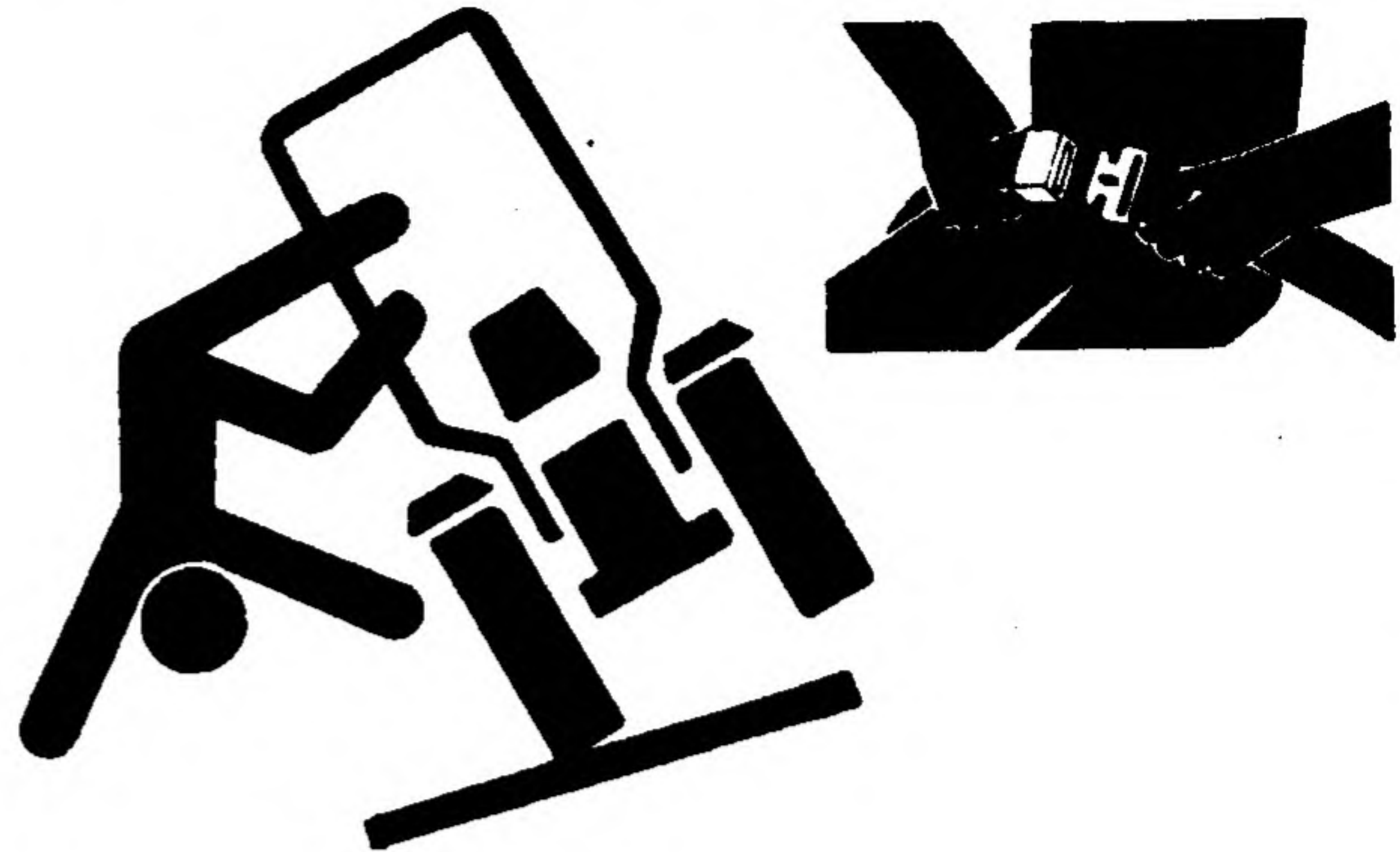
- Use only approved drawbar hitch points.
- Limit loads to those you can safely control.
- Use counterweights or wheel weights when suggested in this operator's manual.

Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.

Do not stop or start suddenly when going uphill or downhill.

If machine stops going up hill:

- STOP the PTO.
- Back down slowly.



TS205 -UN-23AUG88

MX,AVOIDTIP1A1 -19-22JUL94-1/1

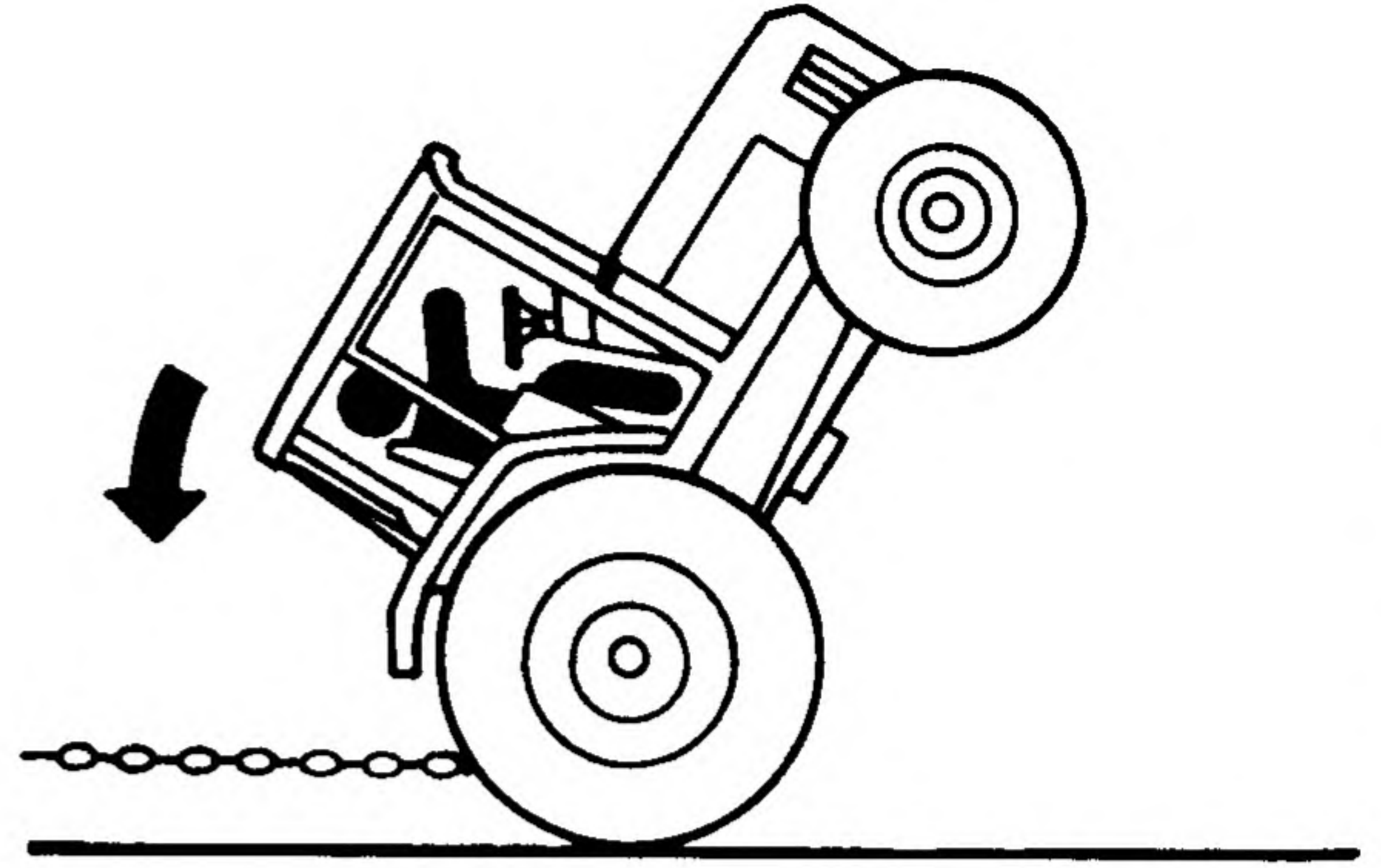
Freeing a Mired Machine

Attempting to free a mired machine can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (a cable is not recommended) failing and recoiling from its stretched condition.

Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

If necessary to tow with another unit, use a tow bar or a long chain (a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Do not hitch to the front pushbar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.



TS1645 -UN-15SEP95



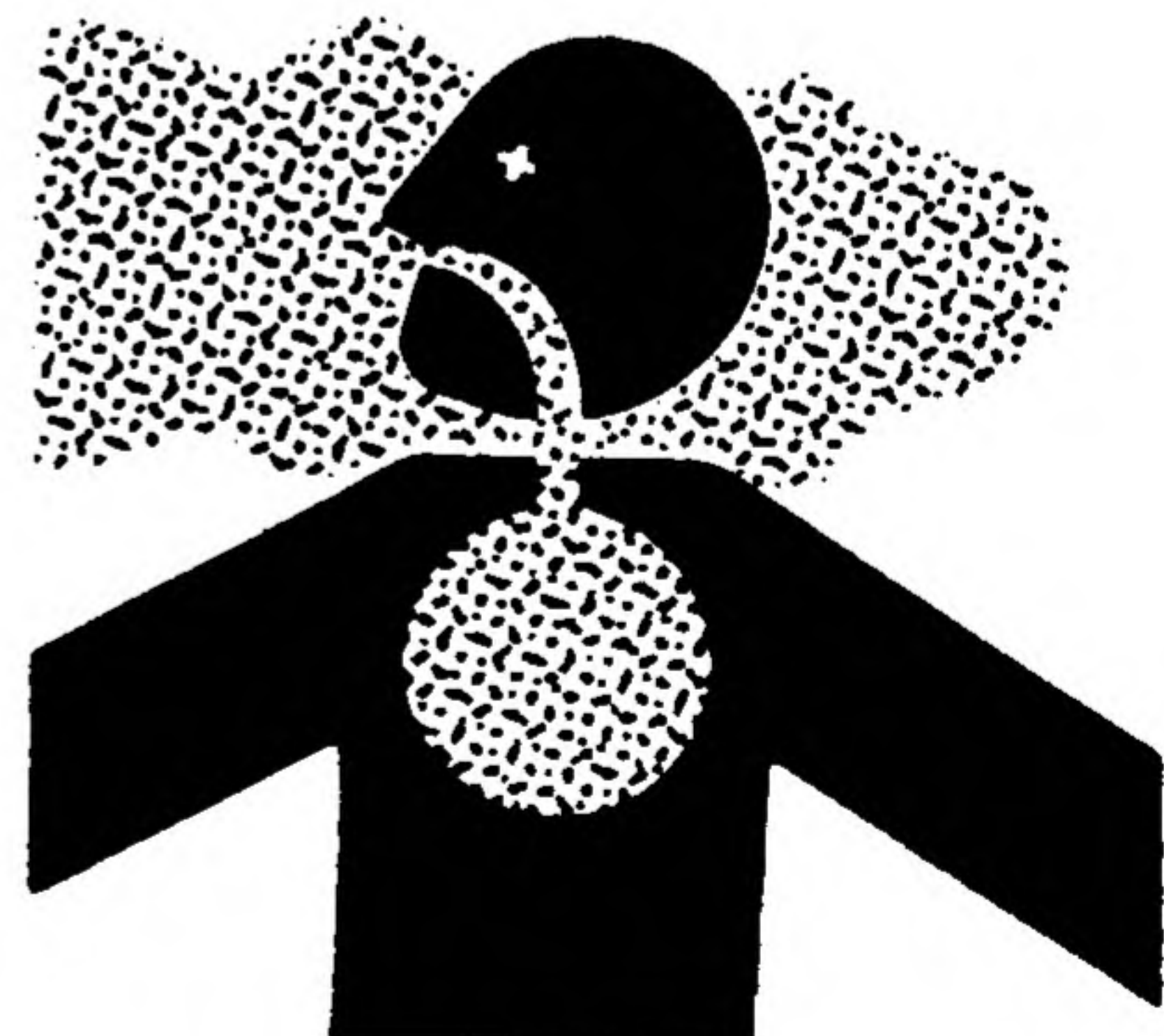
TS263 -UN-23AUG88

DX,MIRED -19-07JUL99-1/1

Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



TS220 -UN-23AUG88

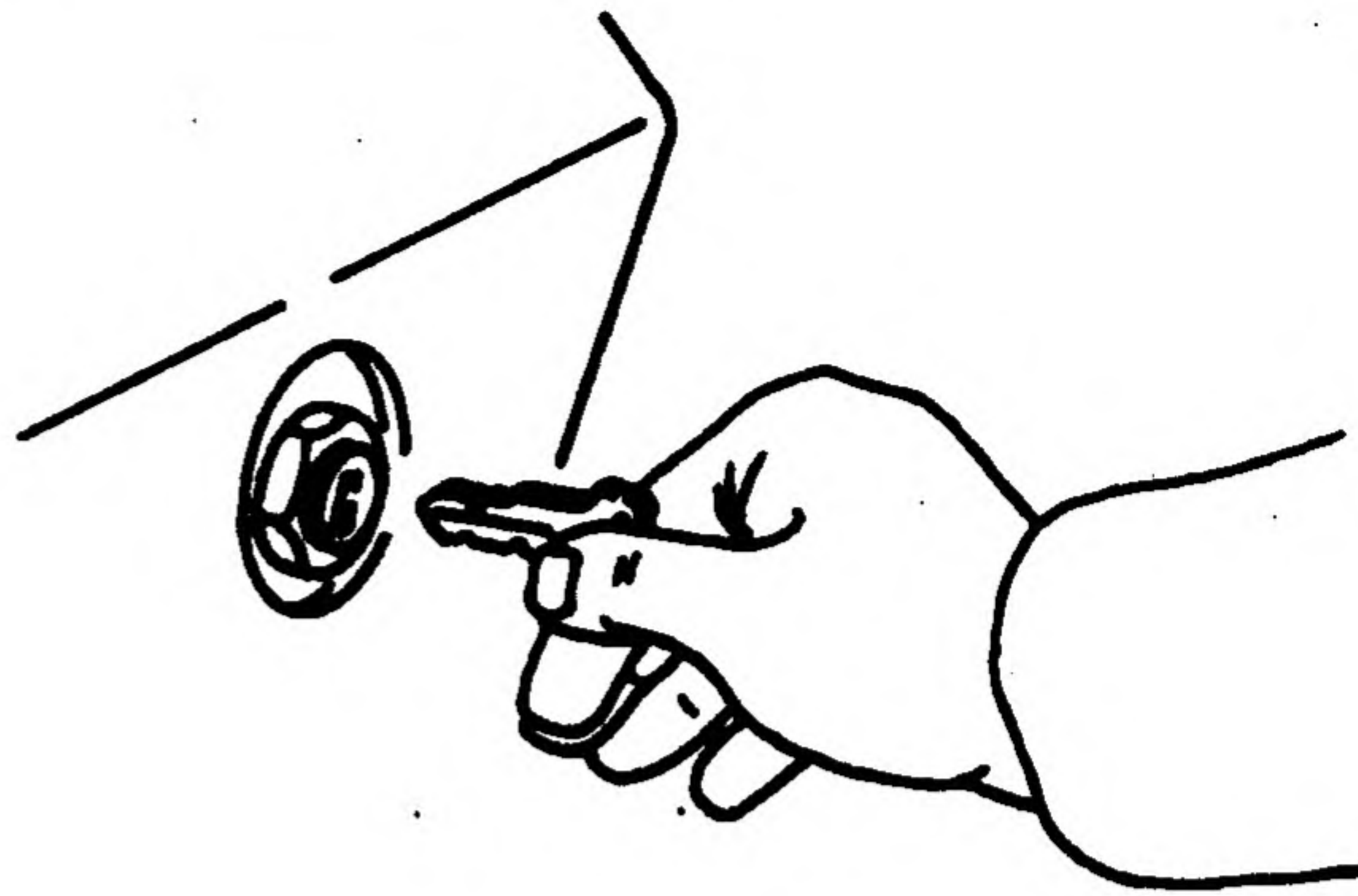
DX,AIR -19-17FEB99-1/1

Park Tractor Safely

To park tractor safely:

- Disengage PTO.
- Lower equipment to the ground.
- Put gear shift lever in PARK.
- STOP the engine.
- Remove key.

Before you leave the operator's seat, wait for engine and attachment parts to stop moving.



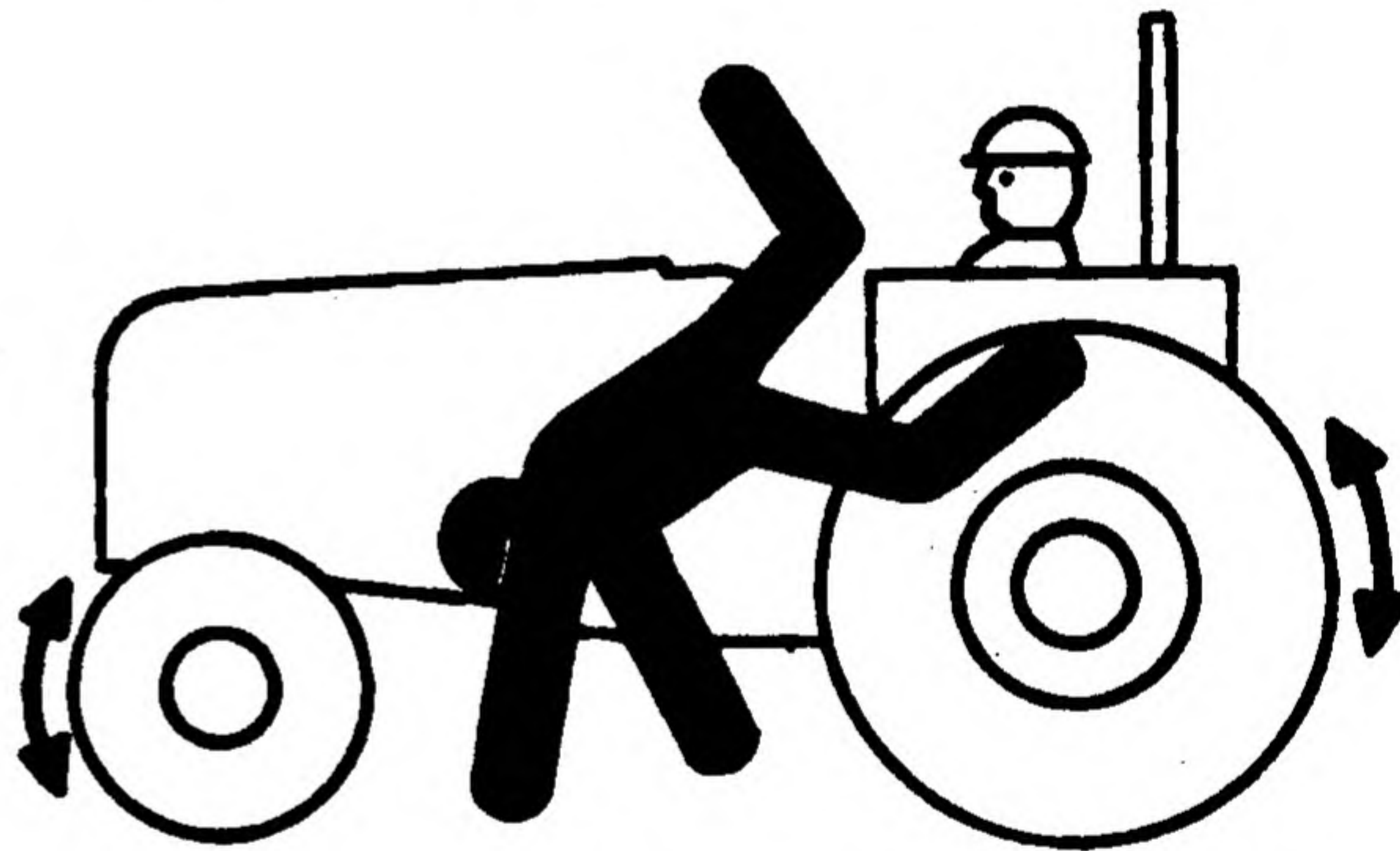
M35691 -UN-26APR89

MX,SAIP,AAA1 -19-29JUL94-1/1

Keep Riders Off Machine

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.



TS290 -UN-23AUG88

DX,RIDER -19-03MAR93-1/1

Handle Fuel Safely—Avoid Fires

Handle fuel with care; it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.



TS202 -UN-23AUG88

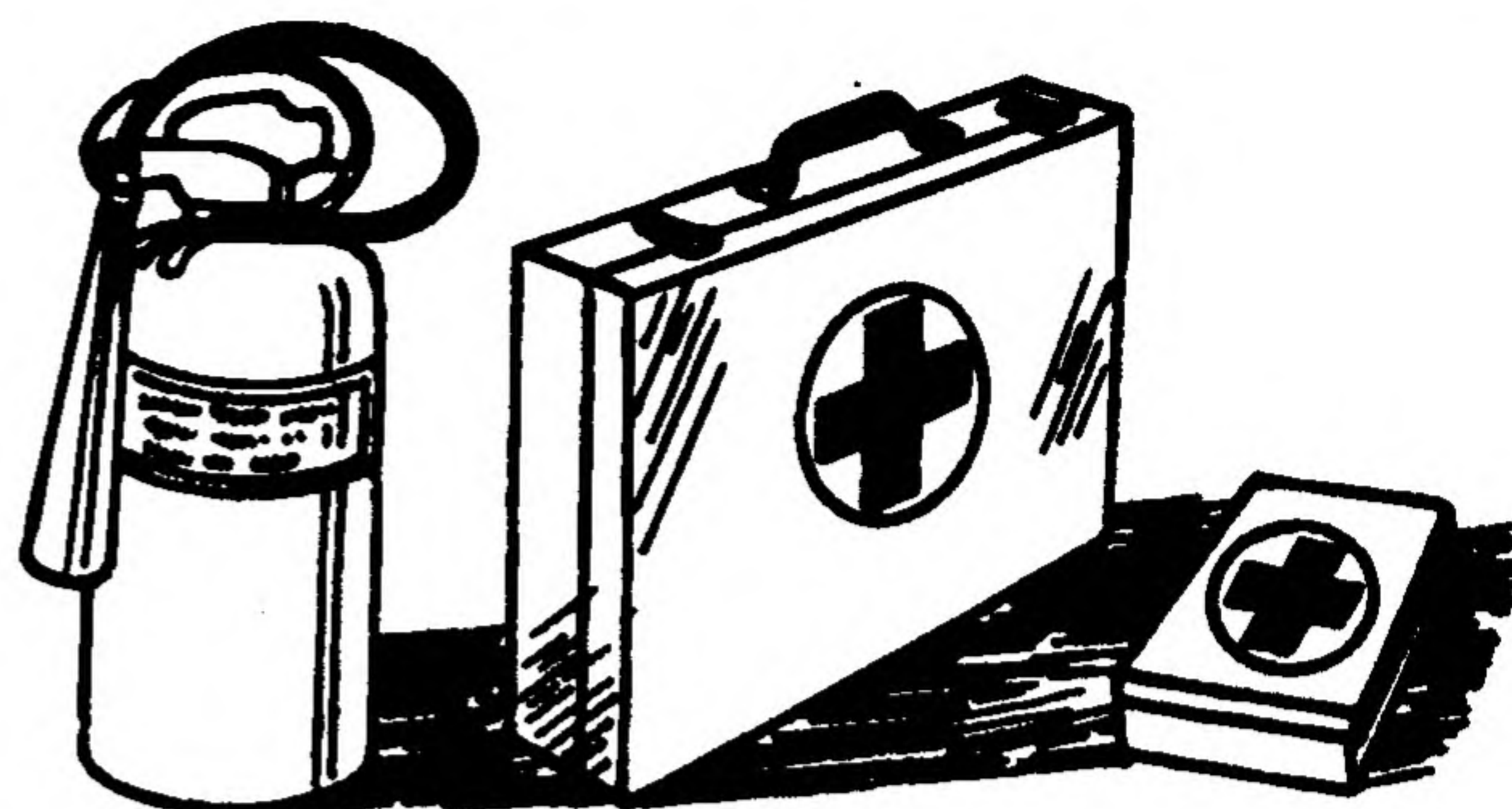
DX,FIRE1 -19-03MAR93-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 -UN-23AUG88

DX,FIRE2 -19-03MAR93-1/1

Do Not Use Starting Fluid

DO NOT use starting fluid in tractors equipped with an intake air heater system. (See your John Deere dealer for a complete list of other starting aids available).

Tractors are equipped with an intake air heater system.



LV611 -UN-22APR94

MX,SAIP,JA2 -19-24JUL95-1/1

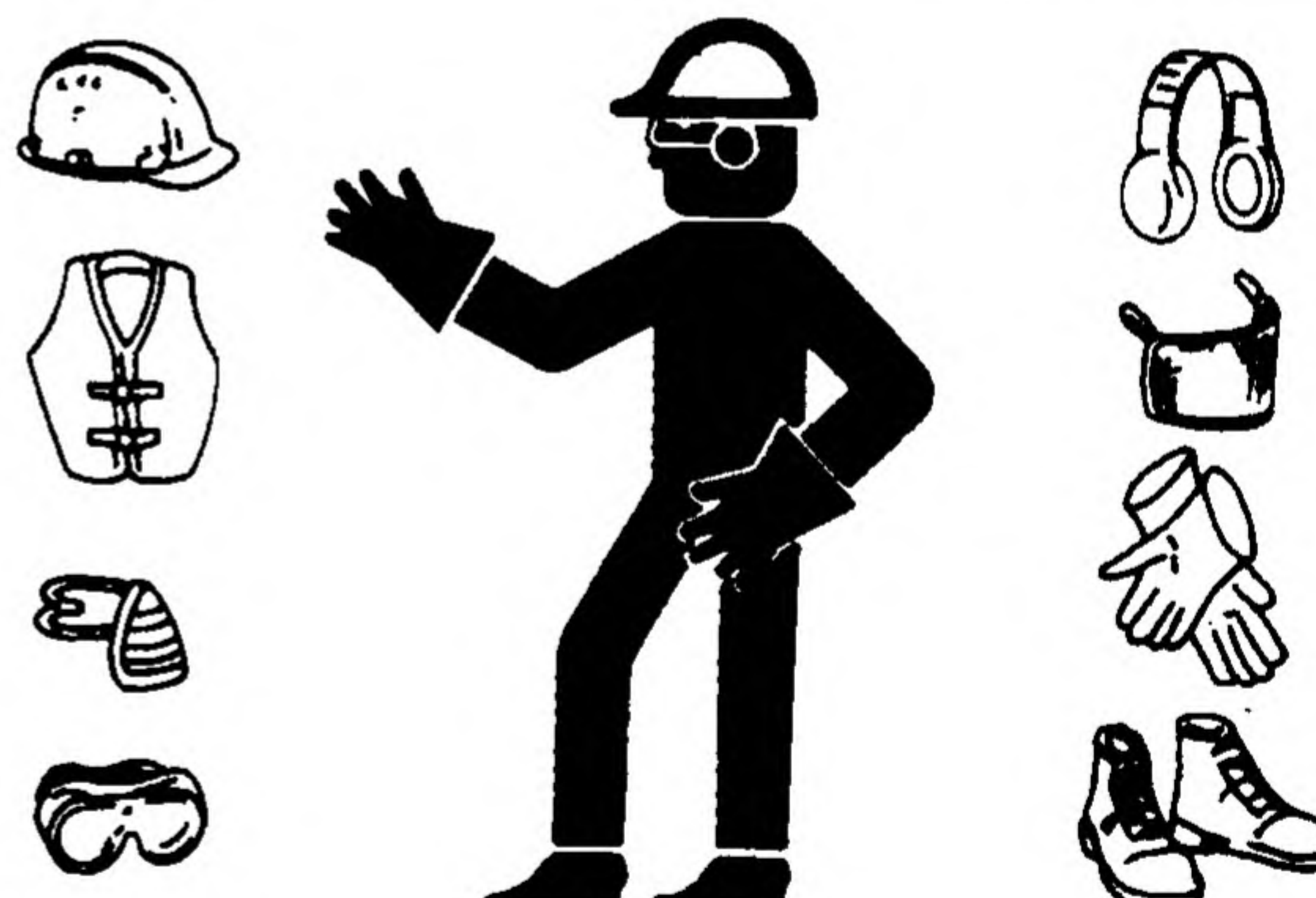
Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



TS206 -UN-23AUG88

DX,WEAR -19-10SEP90-1/1

Protect Against Noise

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



DX,NOISE -19-03MAR93-1/1

TS207 -JUN-23AUG88

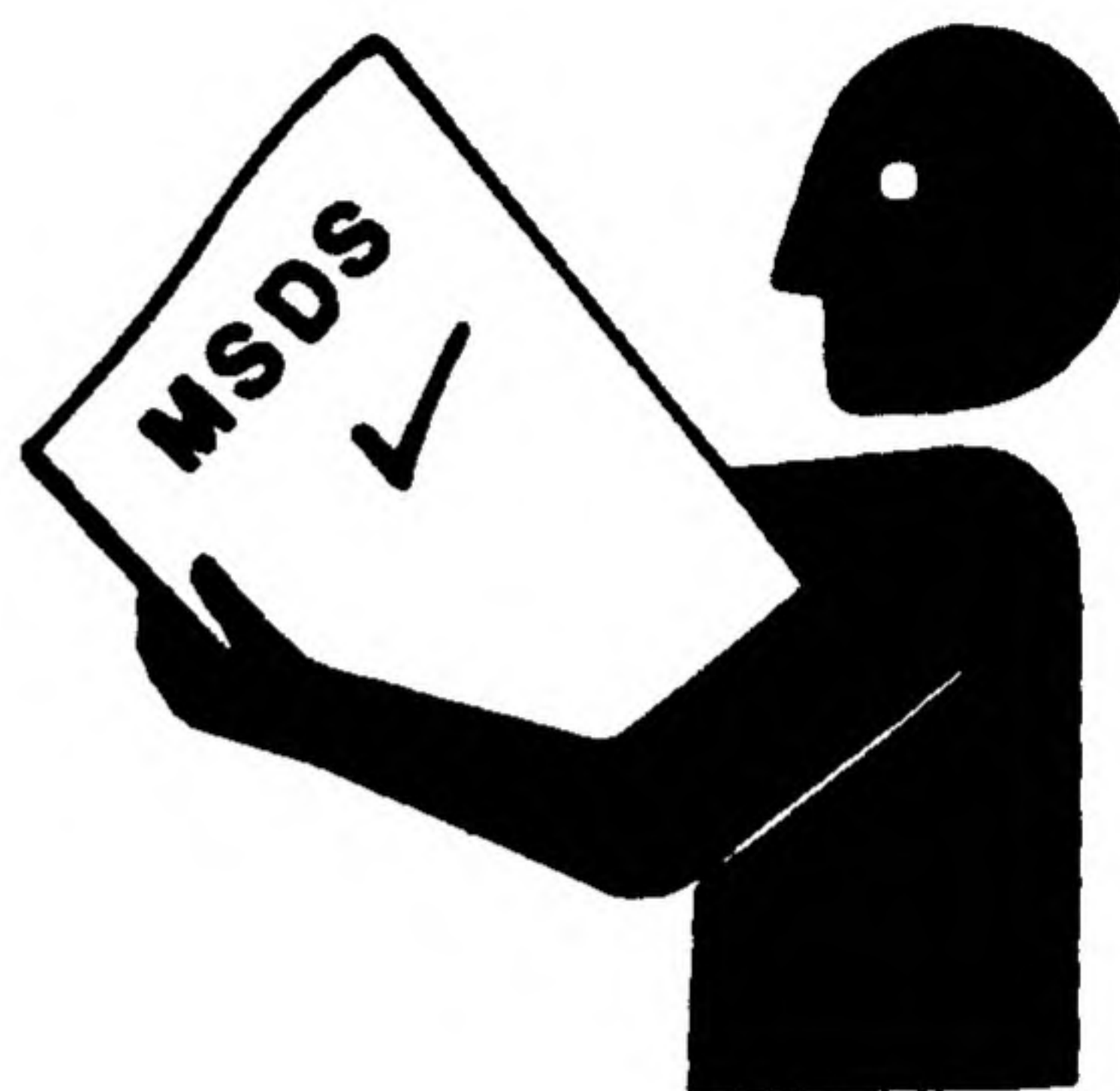
Handle Chemical Products Safely

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

(See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)



DX,MSDS,NA -19-03MAR93-1/1

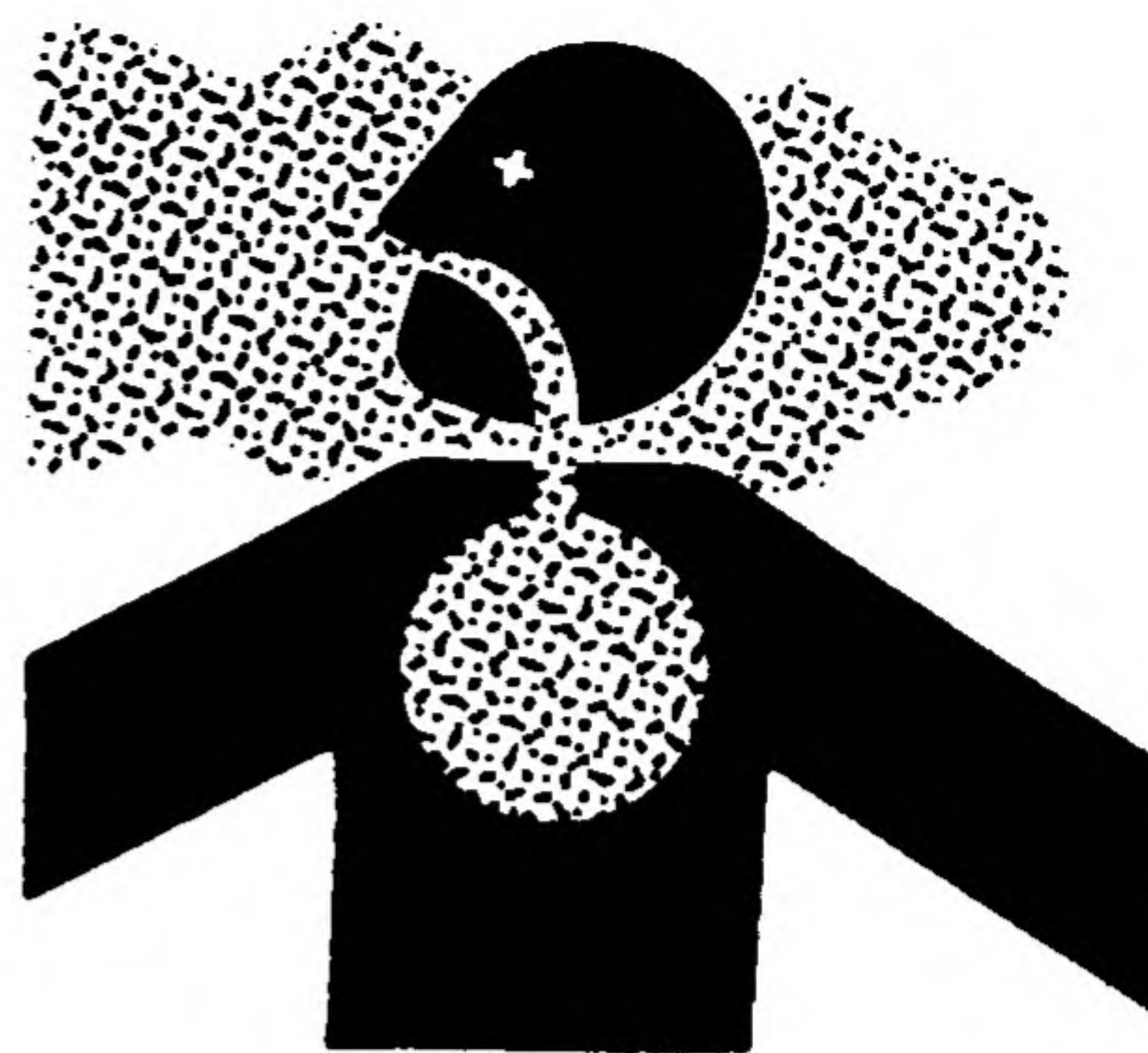
TS1132 -JUN-26NOV90

Avoid Contact with Pesticides

This enclosed cab does not protect against inhaling harmful pesticides. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.

Before leaving the cab, wear personal protective equipment as required by the pesticide use instructions. When re-entering the cab, remove protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container, such as a plastic bag.

Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.



TS220 -UN-23AUG88

TS272 -UN-23AUG88

DX,CABS -19-03MAR93-1/1

Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



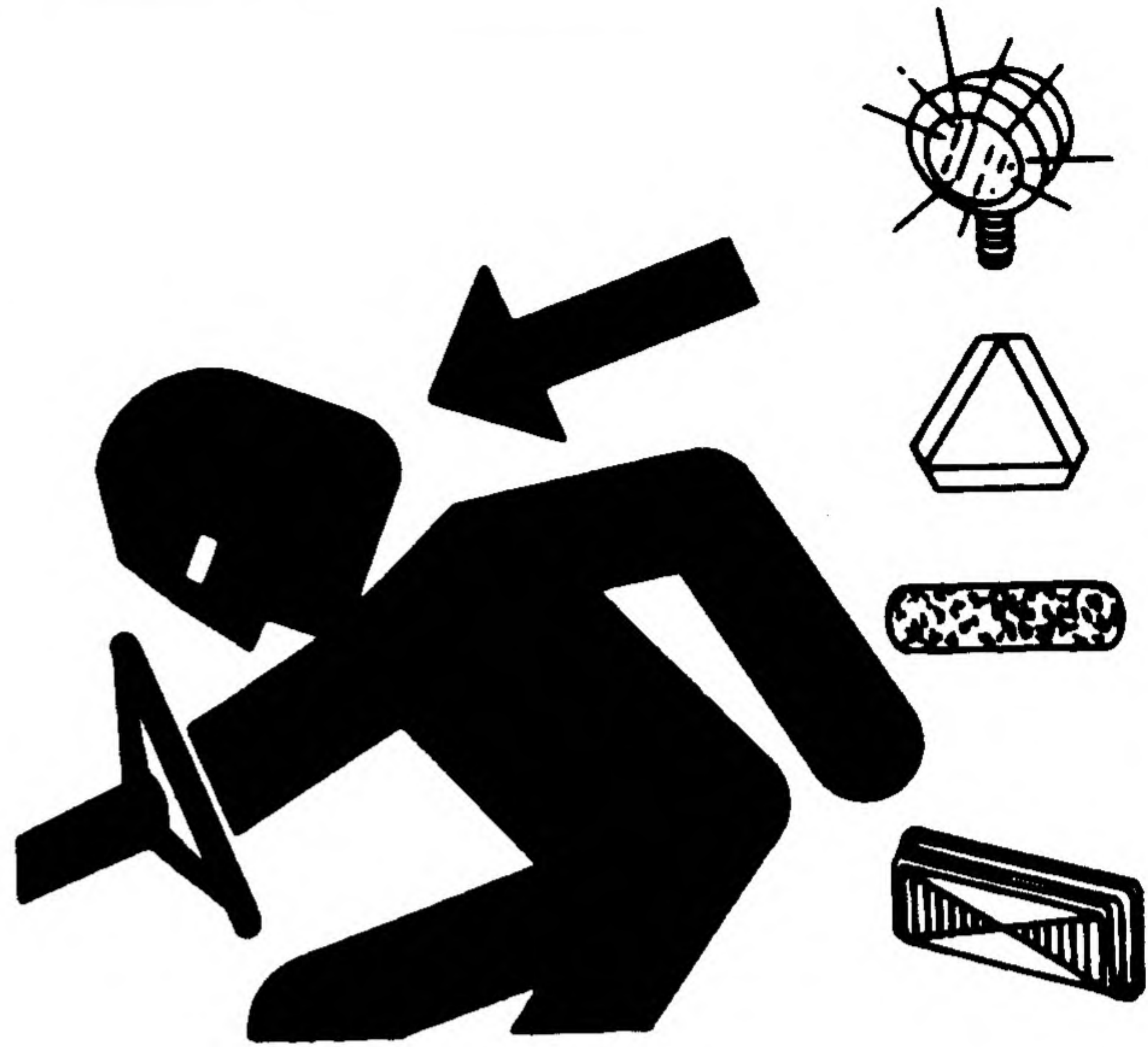
TS1644 -UN-22AUG95

DX,PTO -19-12SEP95-1/1

Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.



TS951 -UN-12APR90

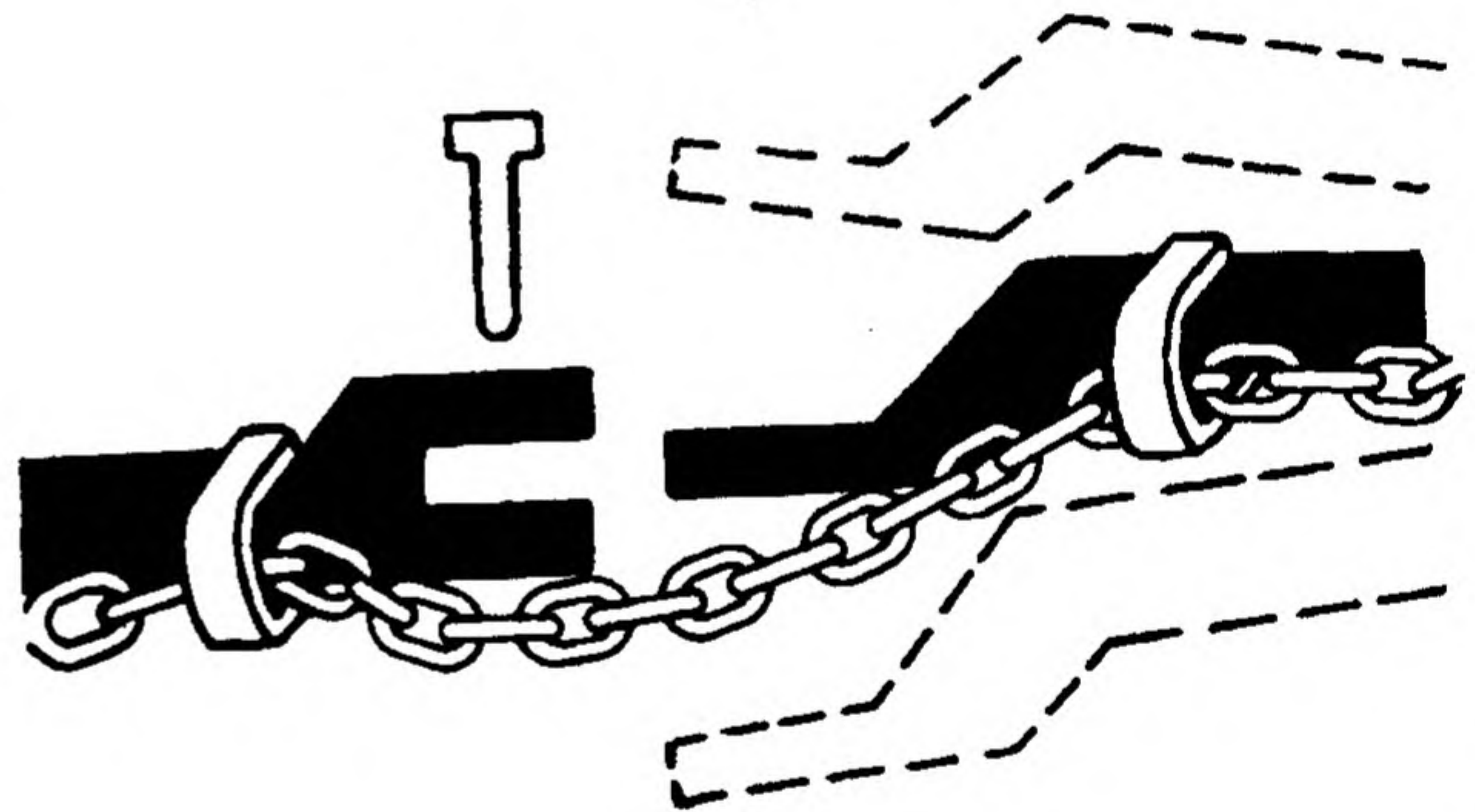
DX,FLASH -19-07JUL99-1/1

Use a Safety Chain

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



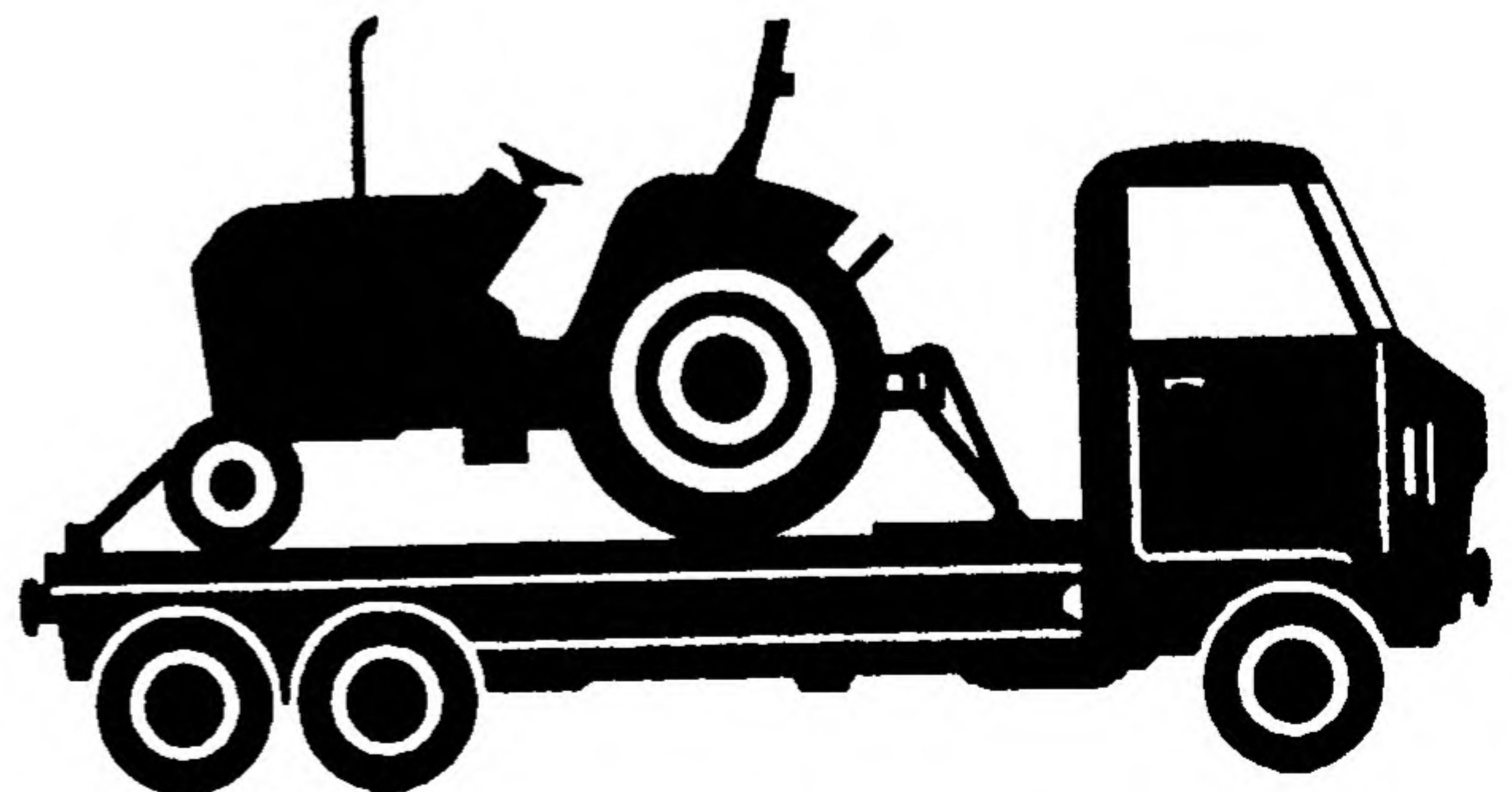
TS217 -UN-23AUG88

DX,CHAIN -19-03MAR93-1/1

Safely Transporting the Tractor

A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier.

Never tow a tractor at a speed greater than 16 km/h (10 mph). An operator must steer and brake the tractor under tow.



LV610 -UN-22APR94

MX,SAIP,LA1 -19-29JUL94-1/1

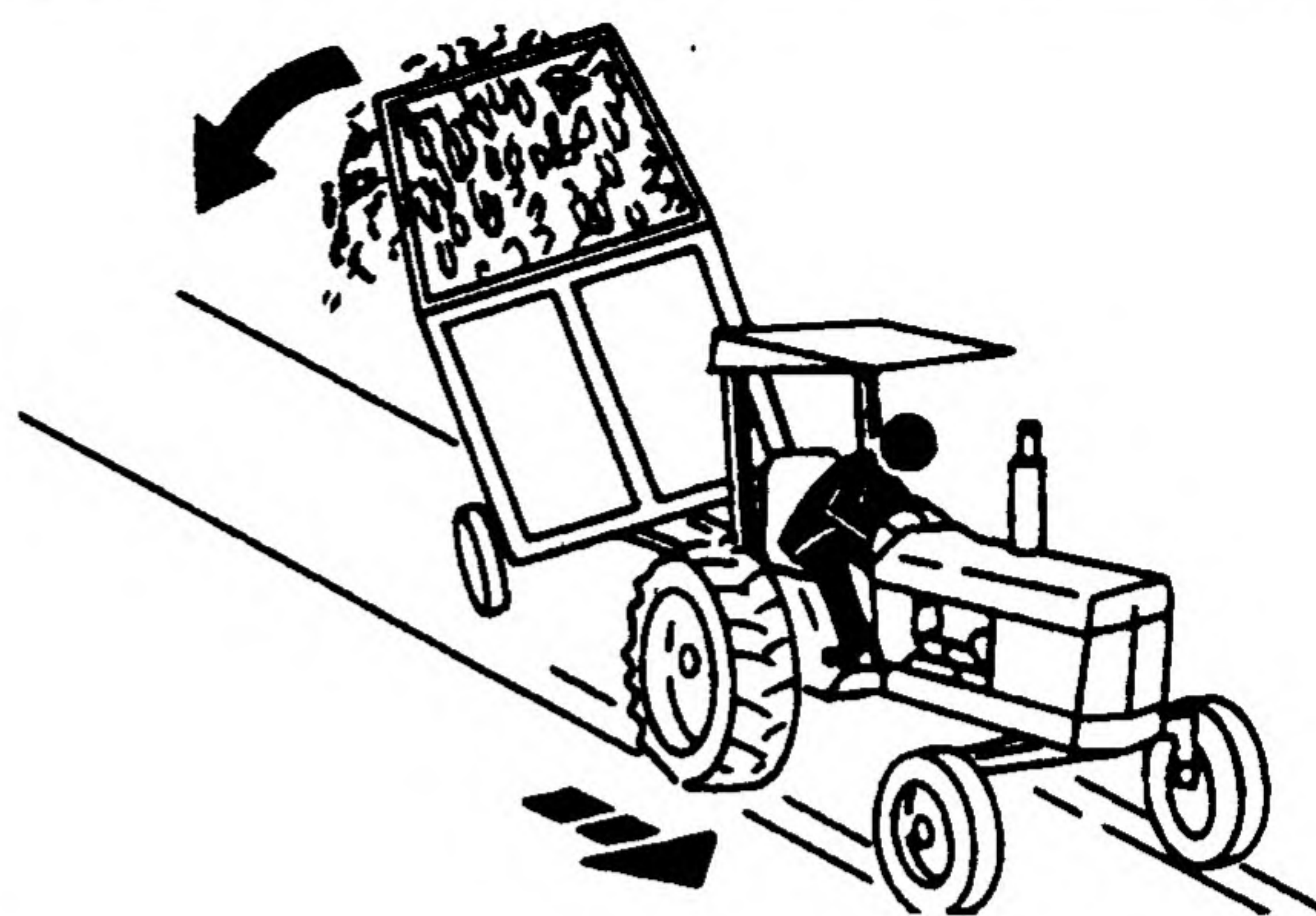
Tow Loads Safely

Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

Observe these recommended maximum road speeds, or local speed limits which may be lower:

- If towed equipment does not have brakes, do not travel more than 32 km/h (20 mph) and do not tow loads more than 1.5 times the tractor weight.
- If towed equipment has brakes, do not travel more than 40 km/h (25 mph) and do not tow loads more than 4.5 times the tractor weight.

Ensure the load does not exceed the recommended weight ratio. Add ballast to recommended maximum for tractor, lighten the load, or get a heavier towing unit. The tractor must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.



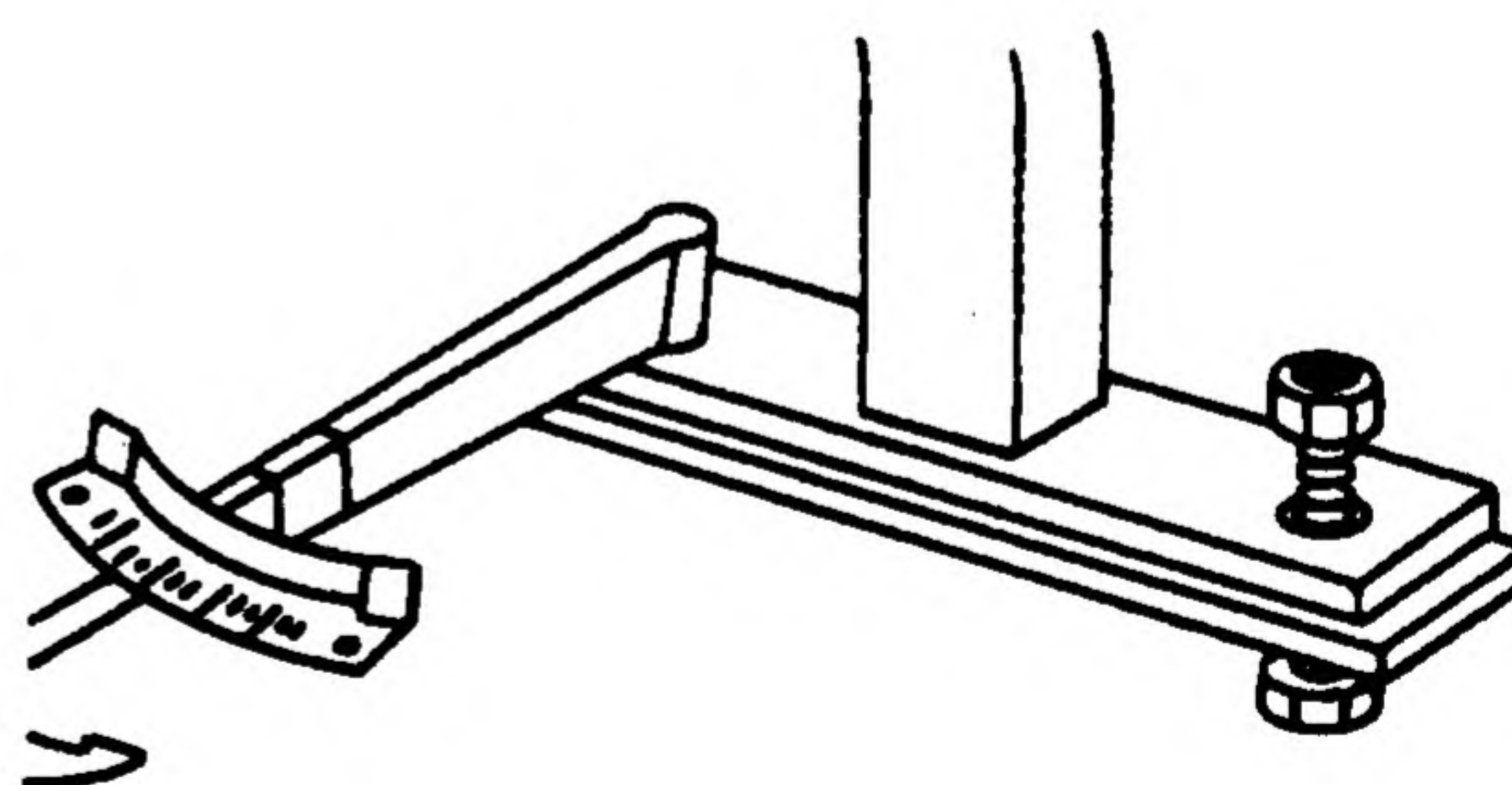
TS216 -UN-23AUG88

DX,TOW -19-02OCT95-1/1

Keep ROPS Installed Properly

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.



TS212 -UN-23AUG88

DX,ROPS3 -19-03MAR93-1/1

Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (—) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



DX,SERV -19-17FEB99-1/1

TS218 -UN-23AUG88

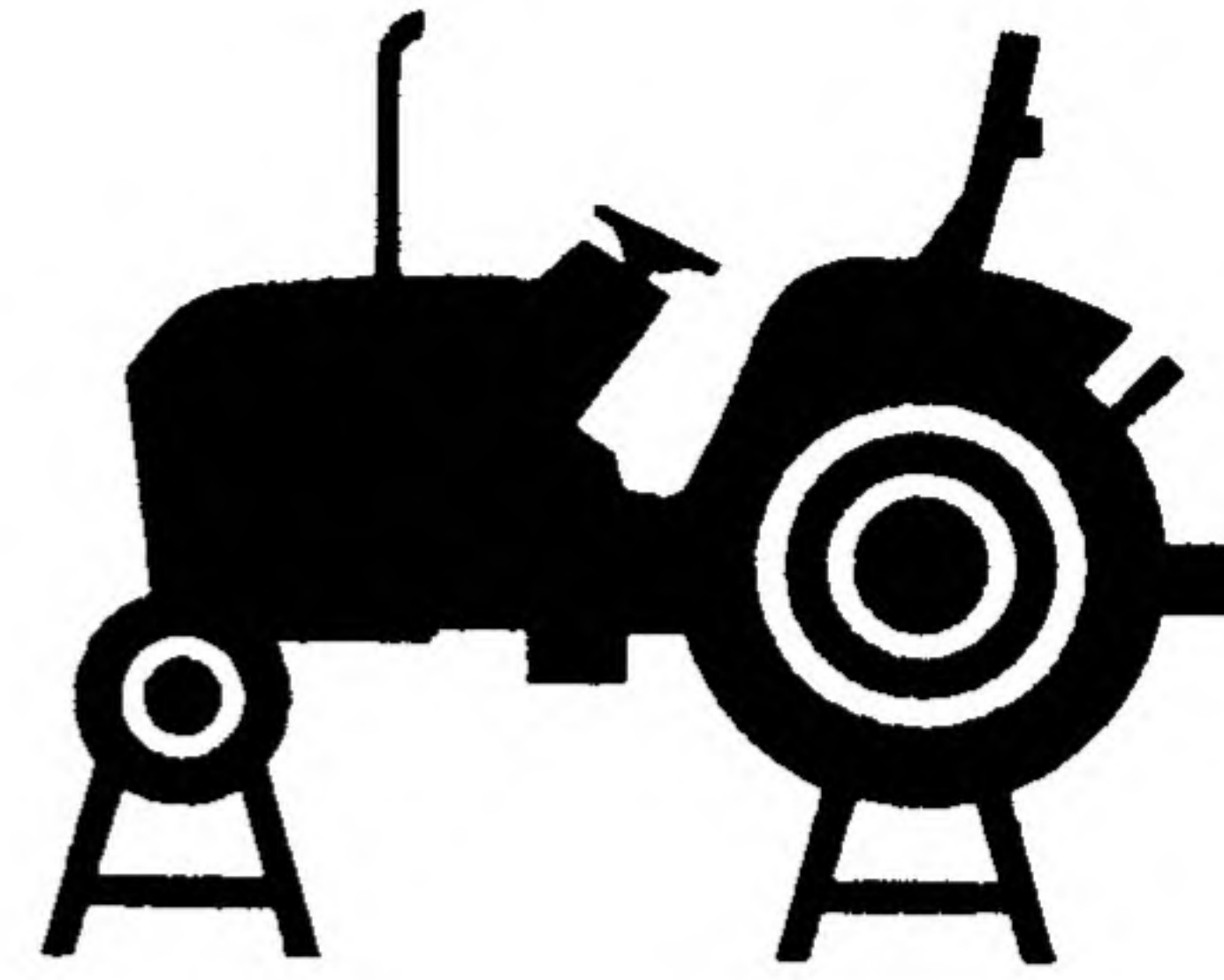
Service Tractor Safely

Do not service the tractor while it is in motion or while the engine is running.

When servicing front-wheel-drive-equipped tractor with rear wheels supported off ground and rotating wheels by engine power, always support front wheels in a similar manner. Engaging front-wheel drive will pull rear wheels off support if front wheels are not raised.

Tighten wheel hardware to correct torque as specified in Wheels, Tires and Tread section. Torque at intervals shown in Break-In Period and Lubrication and Maintenance sections, to ensure that wheel hardware does not loosen.

Reinstall shields removed during service.



LV828 -UN-08AUG94

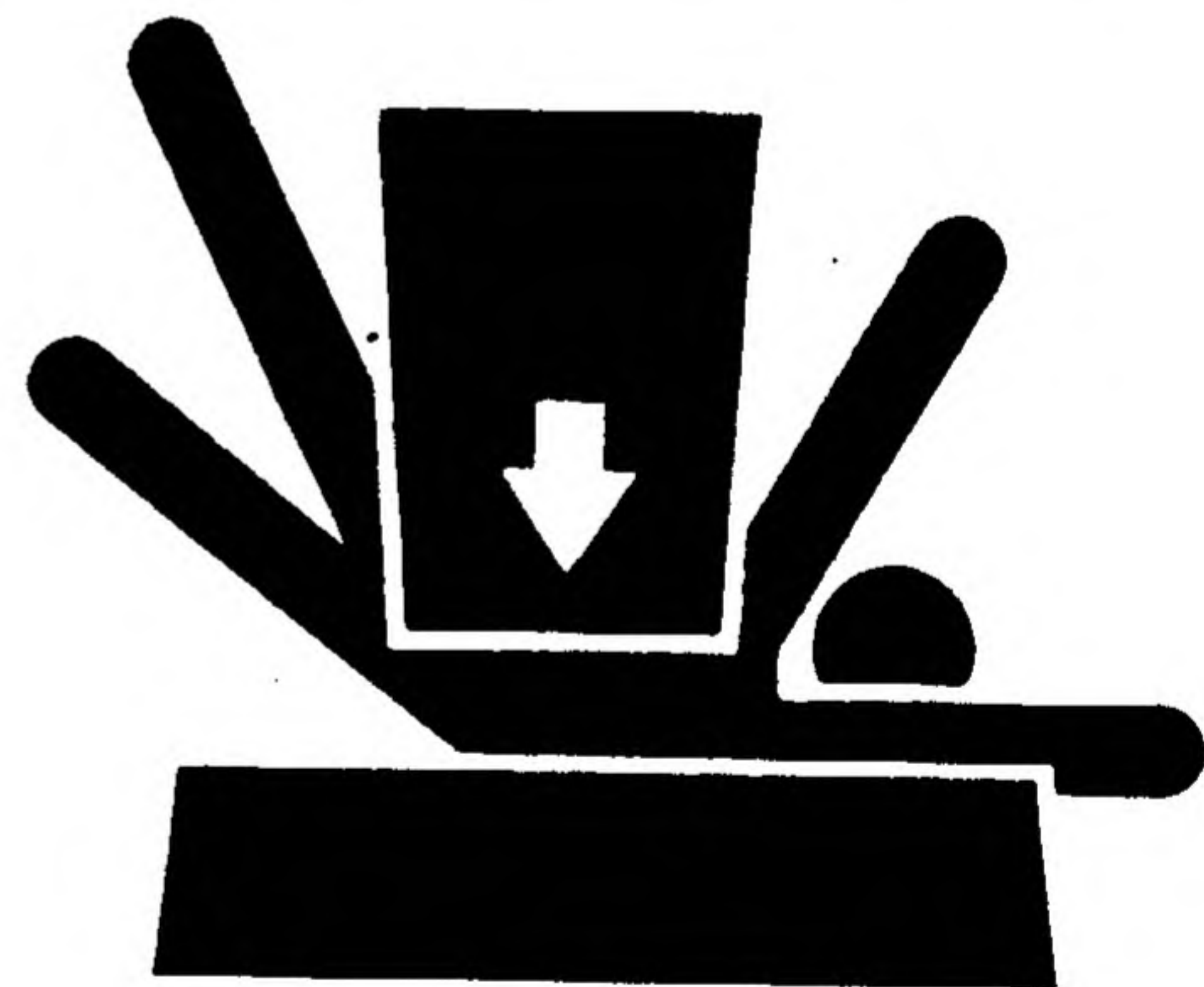
MX,SAIP,MA1 -19-29JUL94-1/1

Support Machine Properly

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a tractor, always follow safety precautions listed in the implement operator's manual.



TS229 -UN-23AUG88

DX,LOWER -19-17FEB99-1/1

Remove Paint Before Welding or Heating

Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



TS220 -UN-23AUG88

DX,PAINT -19-03MAR93-1/1

Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.



TS953 -UN-15MAY90

DX,TORCH -19-03MAR93-1/1

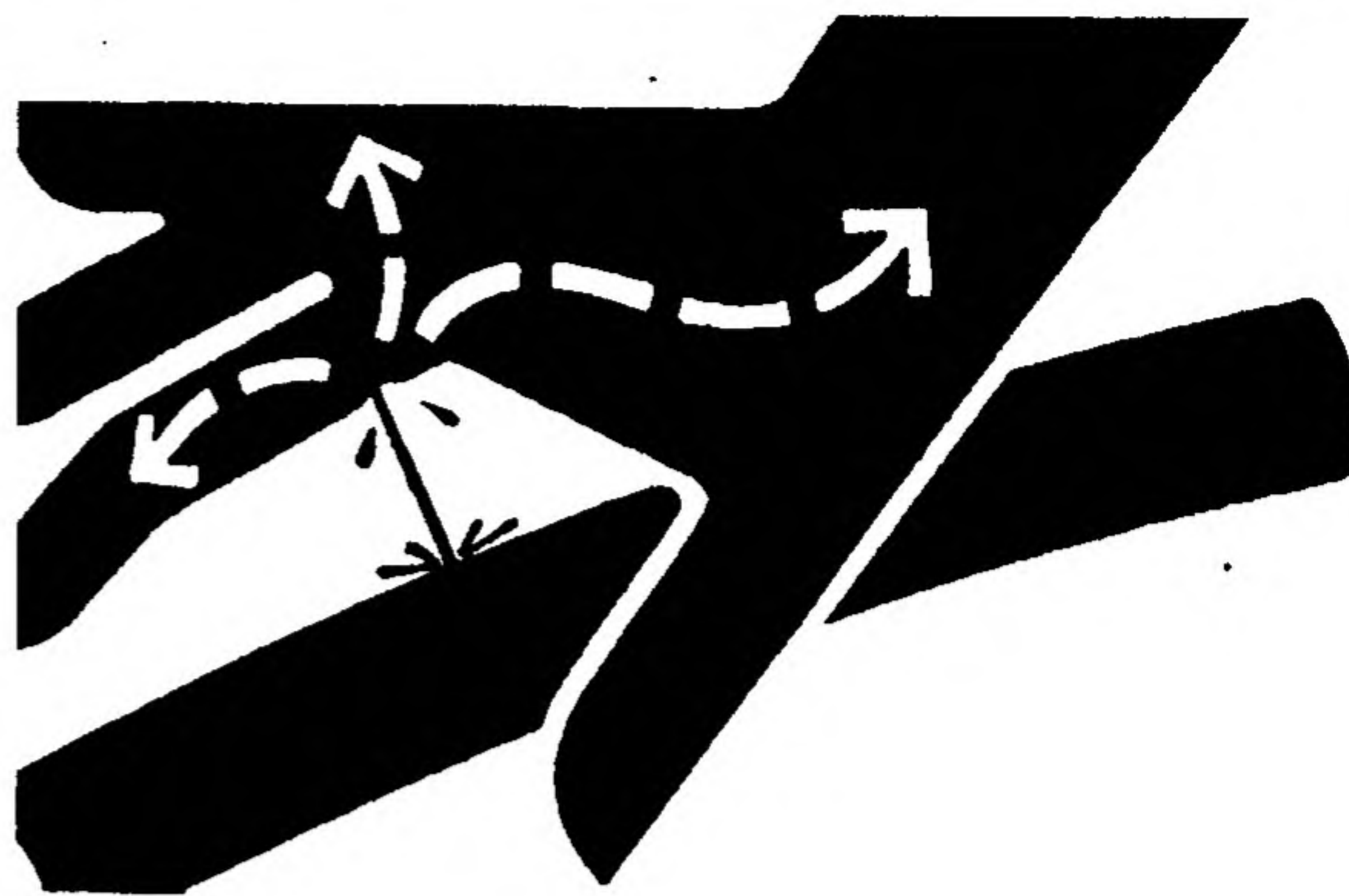
Avoid High-Pressure Fluids

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.



X9811 -UN-23AUG88

DX,FLUID -19-03MAR93-1/1

Service Cooling System Safely

Explosive release of fluids from pressurized cooling system can cause serious burns.

Add make-up coolant through the recovery tank, not directly to the radiator.

If radiator cap must be removed, do not remove when engine is hot. Shut engine off and wait until cap is cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.



TS281 -UN-23AUG88

MX,SAIP,KA1 -19-22JUL94-1/1

Store Attachments Safely

Stored attachments such as dual wheels, cage wheels, and loaders can fall and cause serious injury or death.

Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.



TS219 -UN-23AUG88

DX,STORE -19-03MAR93-1/1

Prevent Acid Burns

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

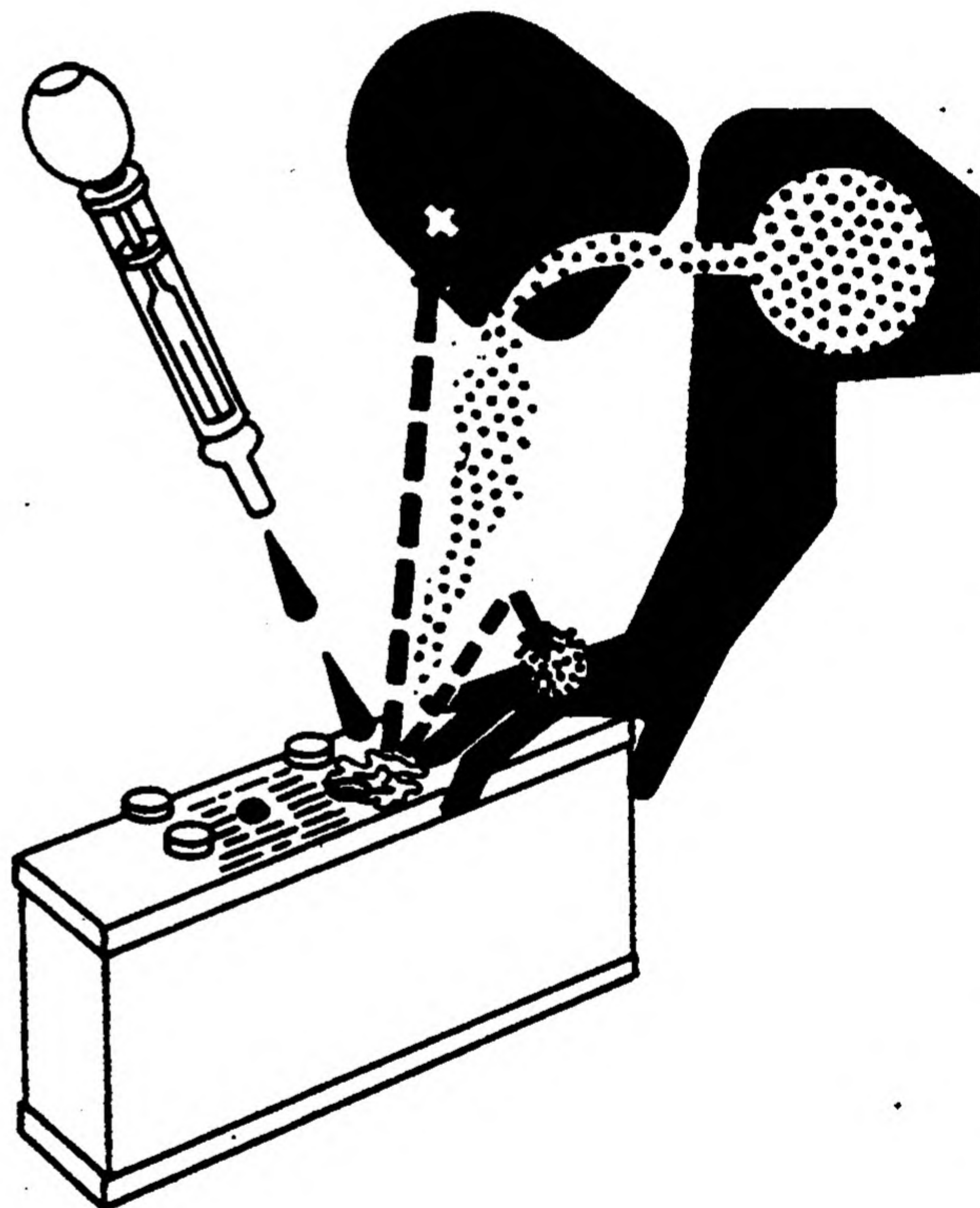
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.



TS203 -UN-23AUG88

DX,POISON -19-21APR93-1/1

Service Tires Safely

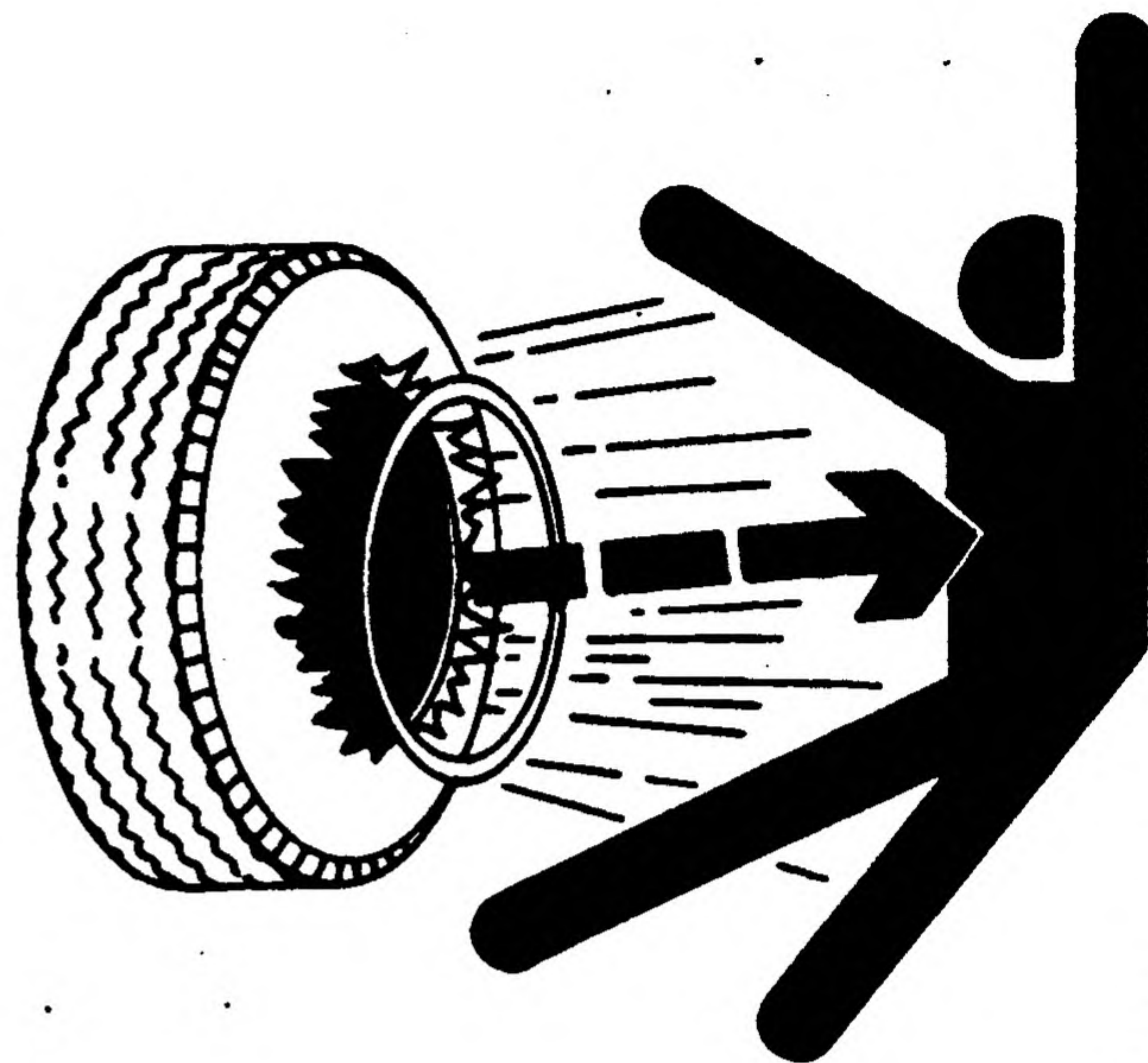
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



TS211 -UN-23AUG88

DX,RIM -19-24AUG90-1/1

Dispose of Waste Properly

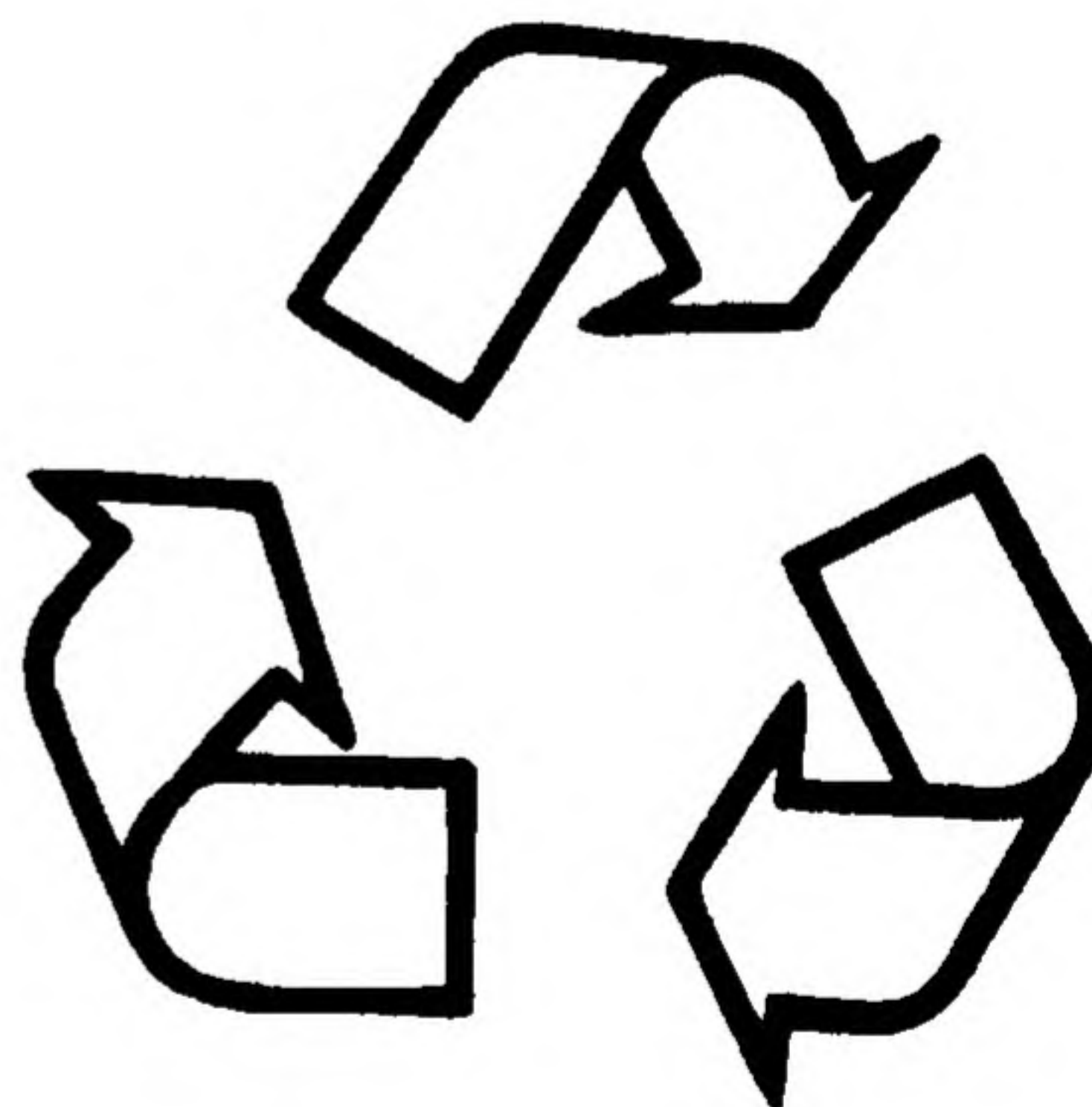
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



TS1133 -UN-26NOV90

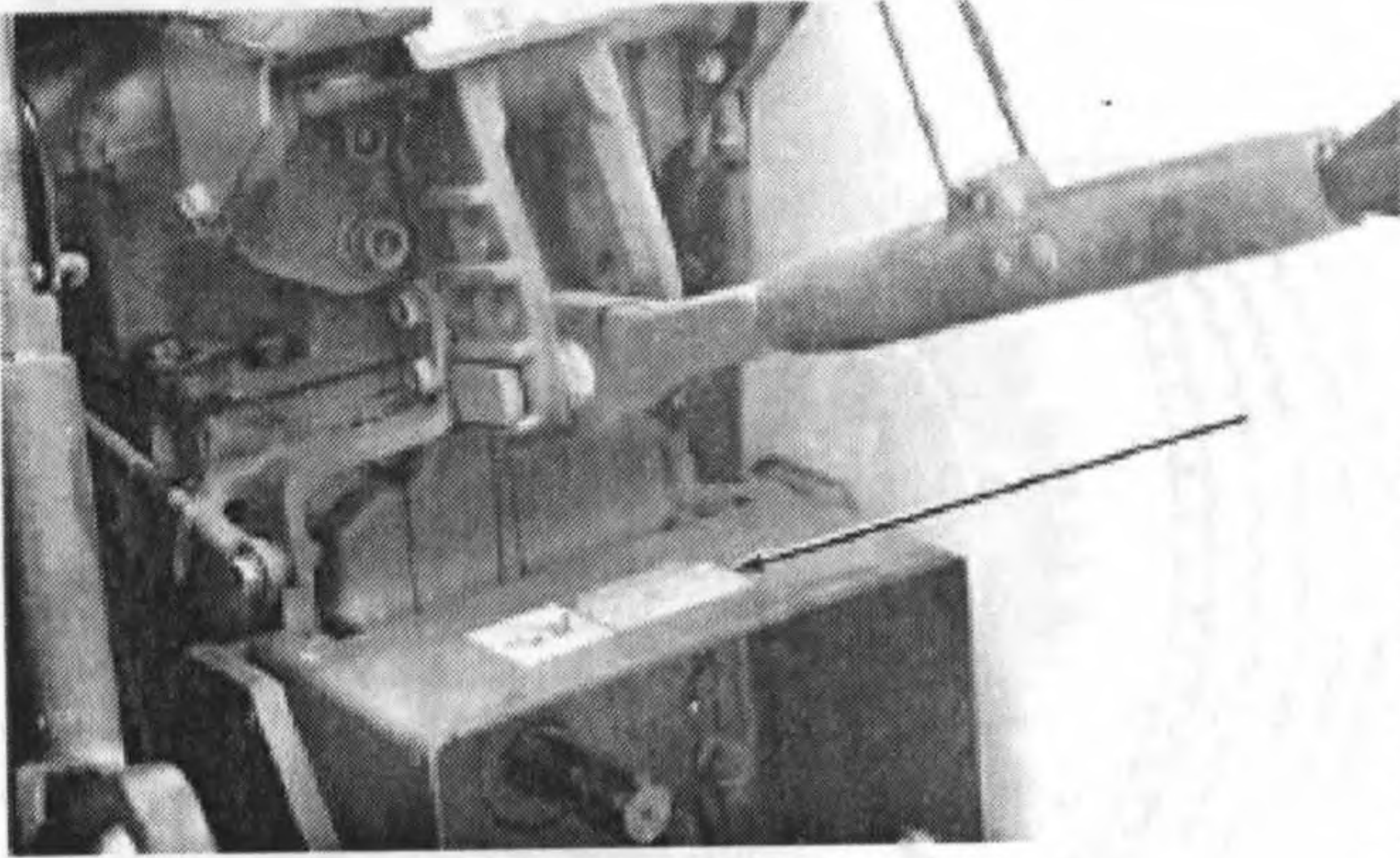
DX,DRAIN -19-03MAR93-1/1

Safety Signs

Warning Labels

Keep warning labels in good repair, replace if not in readable condition.

LV,SAIP,HA3 -19-20JAN96-1/6



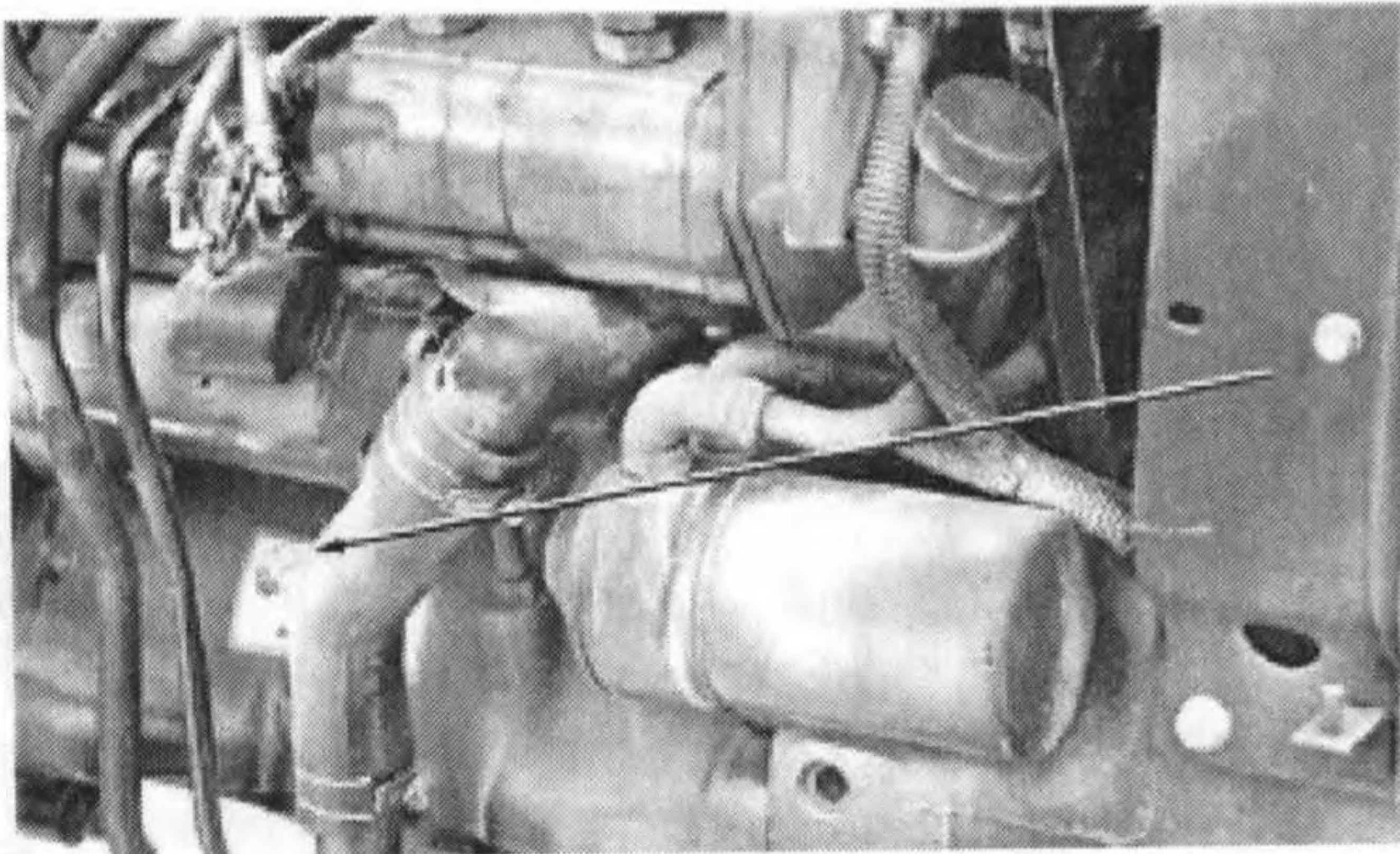
M47221 -19-03FEB92

Top Surface of PTO Shield



M71026 -19-02JUL90

LV,SAIP,HA3 -19-20JAN96-2/6



M47222 -19-03FEB92

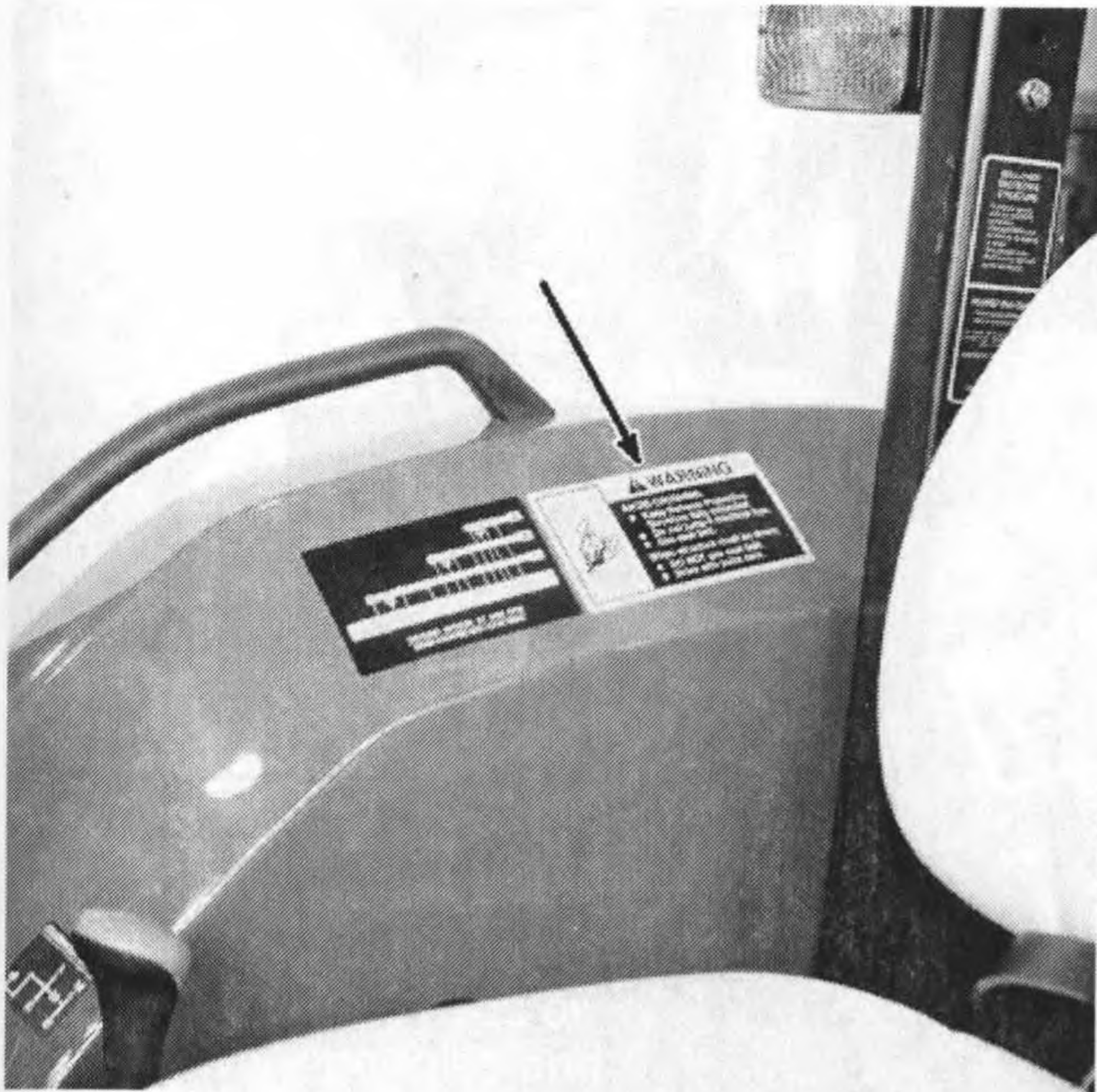
Just Below Starter Body



LV1932 -19-02JUN97

Continued on next page

LV,SAIP,HA3 -19-20JAN96-3/6



Right-Hand Fender

LV1703 -UN-26AUG97



! WARNING

AVOID CRUSHING

- Keep Rollover Protective Structure fully extended.
- Do not jump if machine tips.
- Use seat belt.

When structure must be down,

- DO NOT use seat belt.
- Drive with extra care.

M47225A -19-19JUL95

Continued on next page

LV,SAIP,HA3 -19-20JAN96-4/6



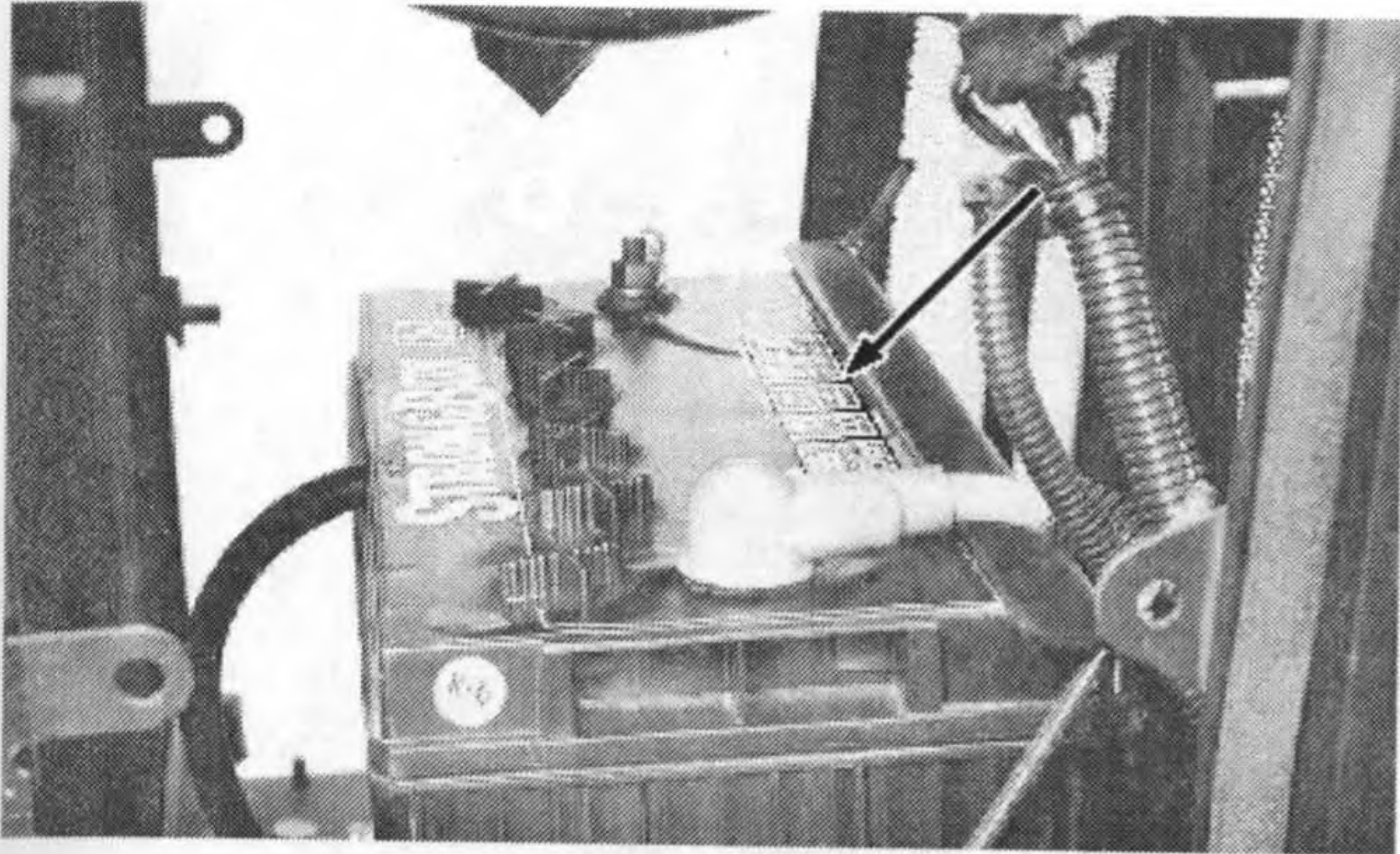
LV1704 -UN-26AUG97

Left-Hand Fender

⚠ CAUTION

- | | |
|---|--|
| 1. Read Operator's Manual before operating this tractor. | brakes or operating around hazards, on rough ground or steep slopes. |
| 2. Keep all shields in place. | 8. Couple brake pedals together for road travel. |
| 3. Hitch towed loads only to drawbar to avoid rearward upset. | 9. Use flashing warning lights on highway unless prohibited by law. |
| 4. Make certain everyone is clear of machine before starting engine or operation. | 10. Stop engine, lower implement to ground and shift to "PARK" or set brakes(s) securely before dismounting. |
| 5. Keep all riders off tractor and equipment. | 11. Wait for all movement to stop before servicing machinery. |
| 6. Keep hands, feet and clothing away from power-driven parts. | 12. Remove key if leaving tractor unattended. |
| 7. Reduce speed when turning or applying individual | |

M47224A -19-02JUN97



LV1934 -UN-28APR97

Top of Battery

⚠ CAUTION

Pressurized refrigerant may penetrate eyes or cause burns. Wear goggles and protect skin.

LV860 -19-19JAN96

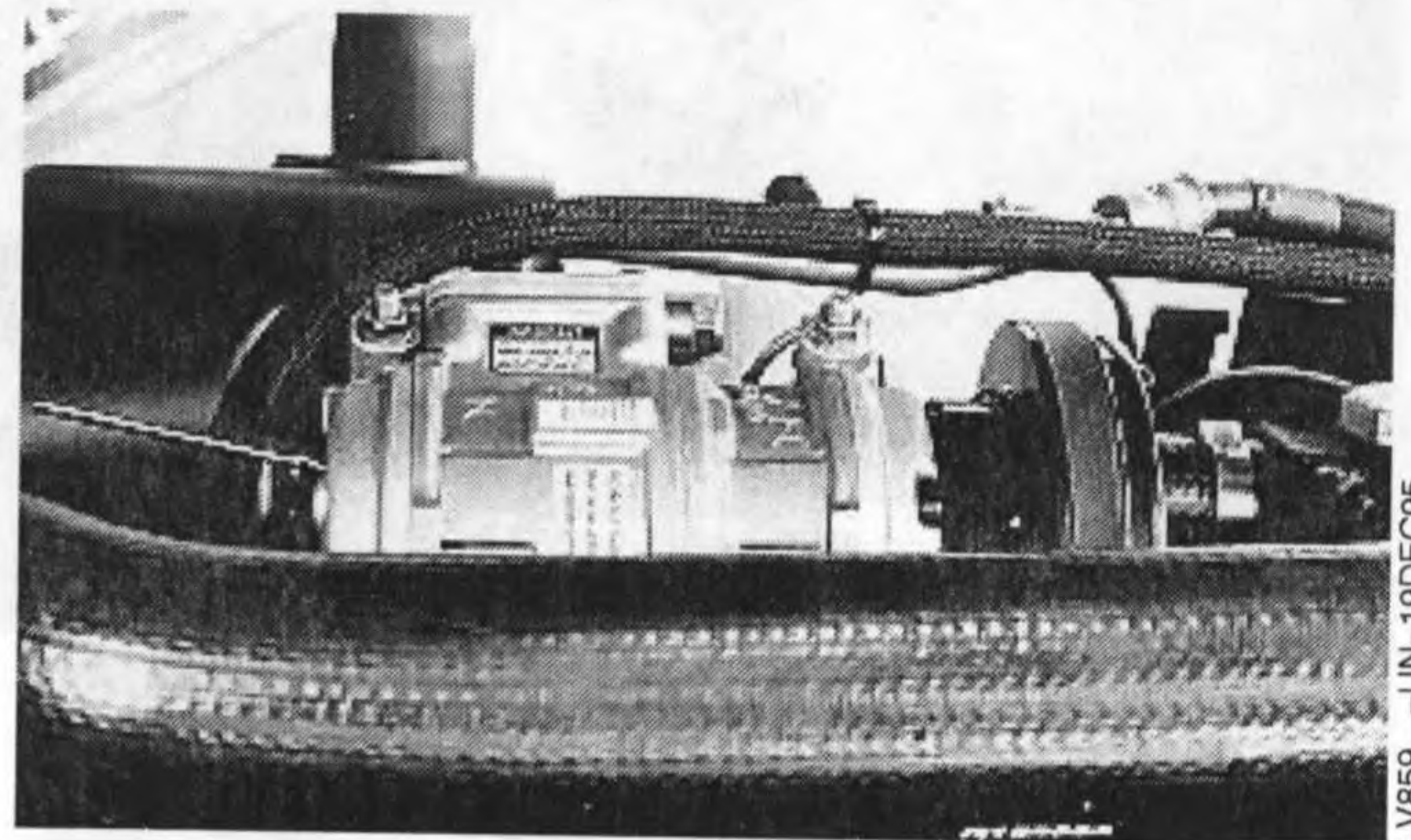
NOTE: Open station tractor shown. On cab tractors, battery is located under cab on left-hand side.

DANGER/POISON



KEEP OUT OF THE REACH OF CHILDREN. DO NOT TIP. KEEP VENT CAPS TIGHT AND LEVEL

LV1933 -19-29AUG97



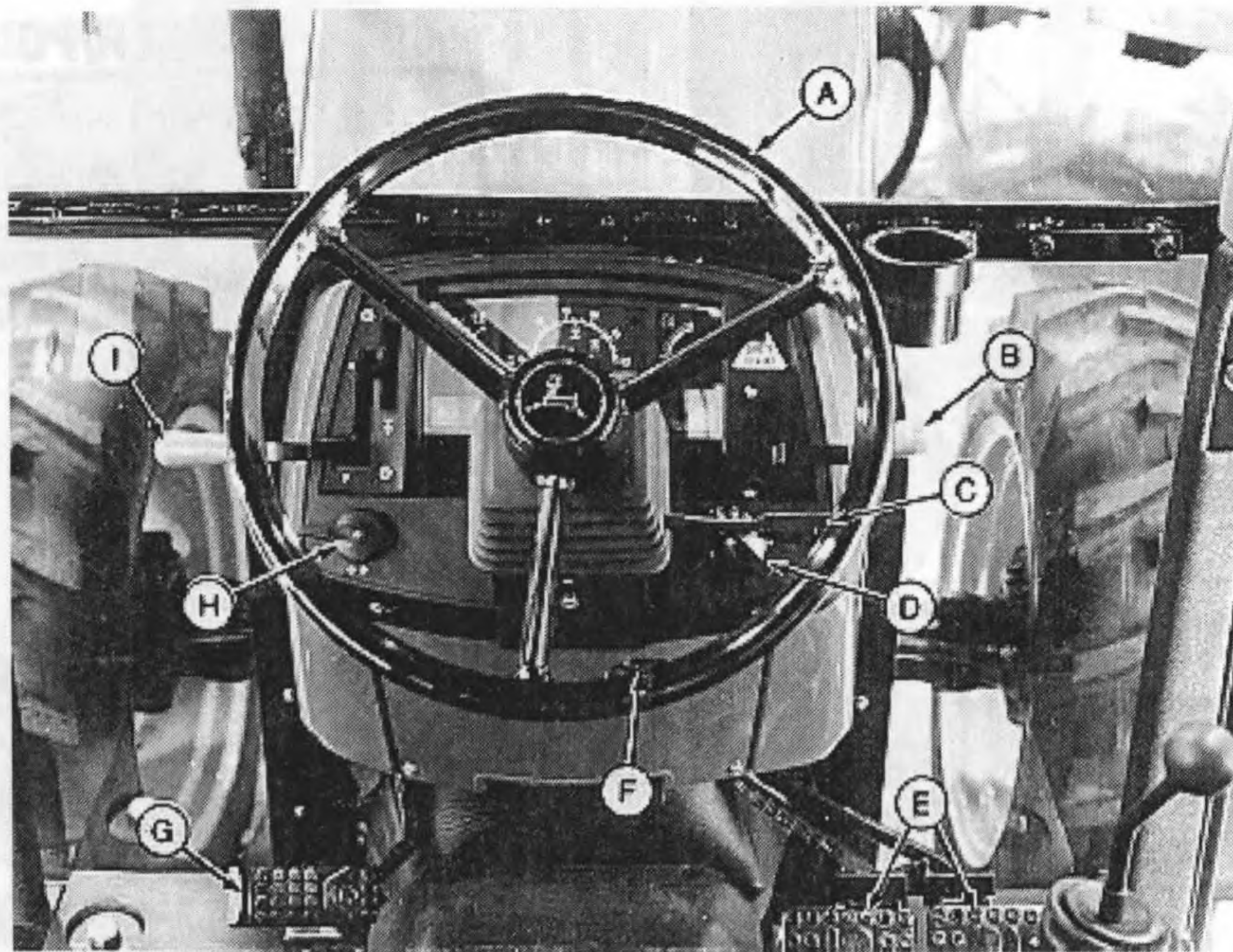
LV859 -UN-19DEC95

Rear of A/C Compressor (3 Cylinder Shown)

LV,SAIP,HA3 -19-20JAN96-6/6

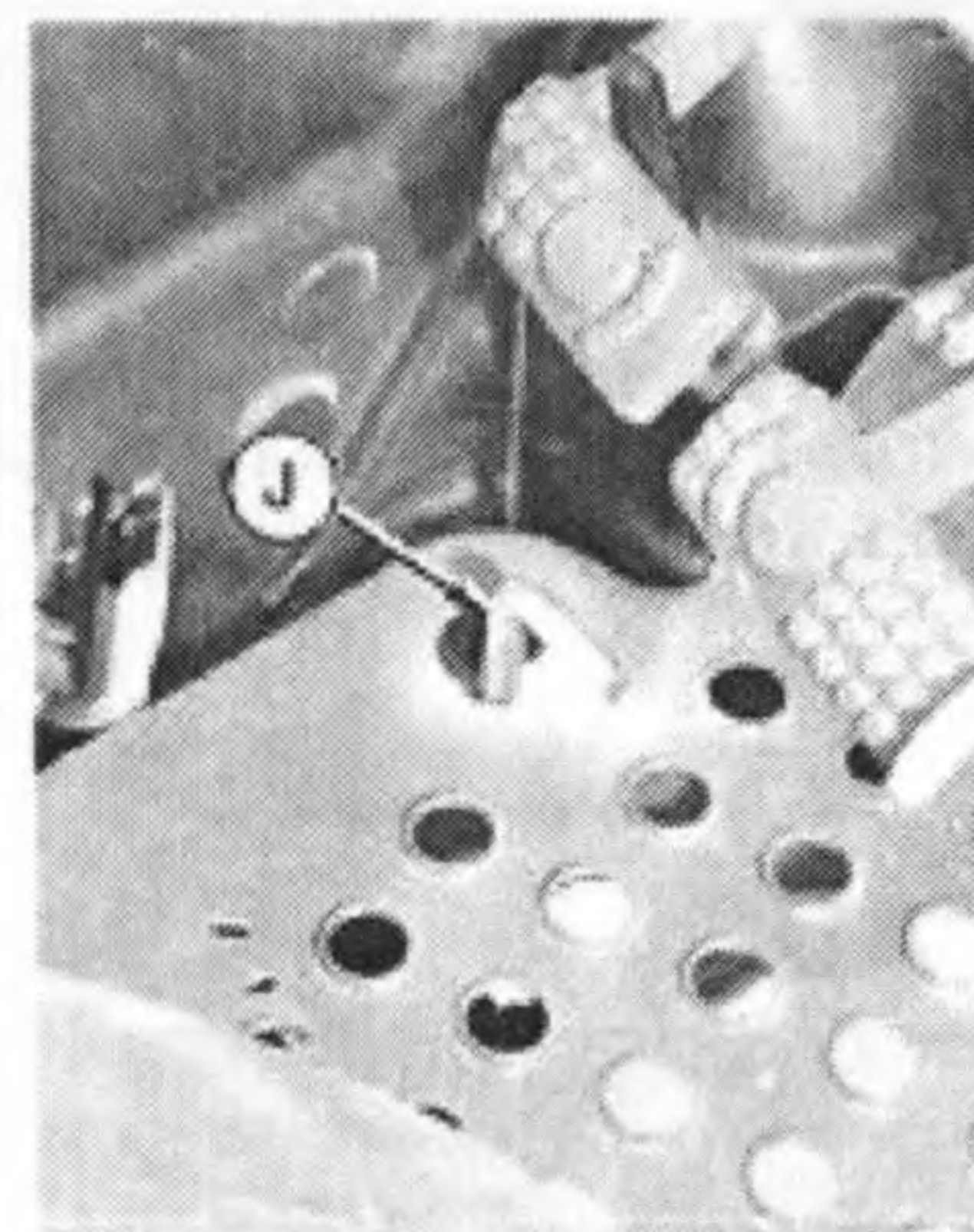
Controls and Instruments

Tractor Controls



LV861 -UN-19DEC95

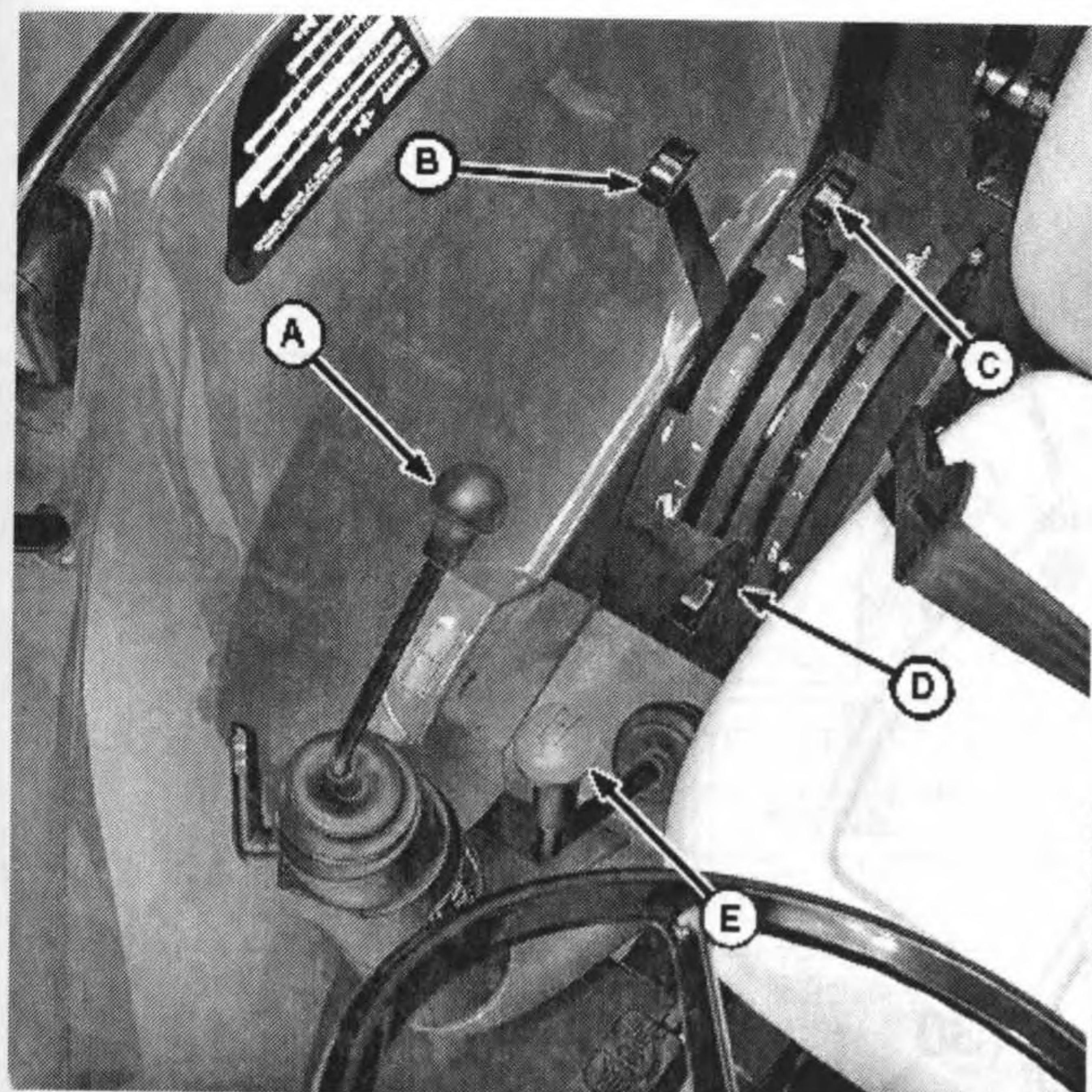
- A—Steering Wheel
- B—Hand Throttle
- C—Steering Tilt Release Lever (5510 and Cab Tractors)
- D—Light Switch
- E—Brake Pedals
- F—Key Switch
- G—Clutch Pedal
- H—Turn Signal Switch
- I—Forward-Neutral-Reverse Lever (Hydraulic Reverser Transmission ONLY)
- J—Foot Throttle



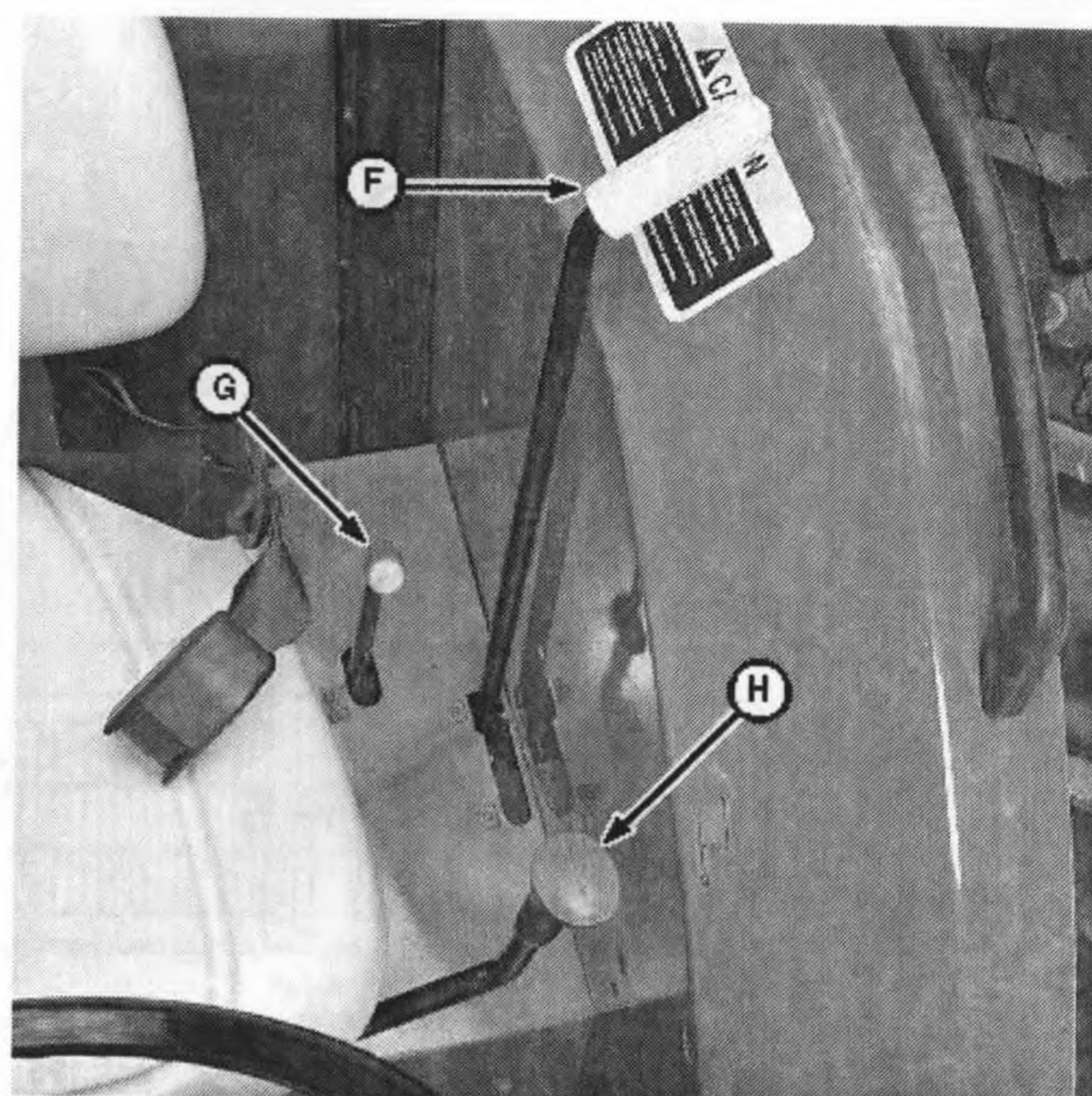
LV896 -UN-09JAN96

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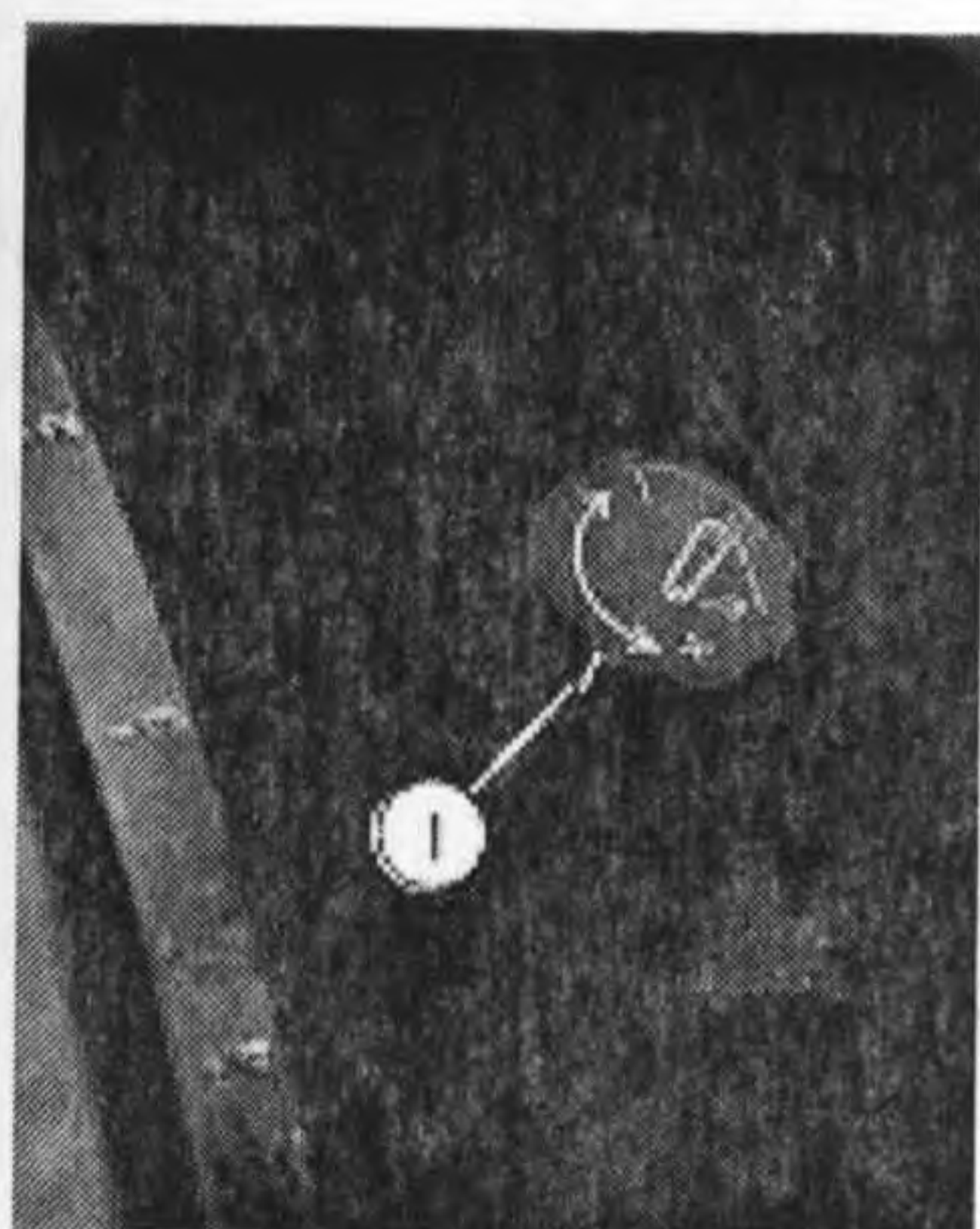
LV,5010CI,A -19-03JUN97-1/2



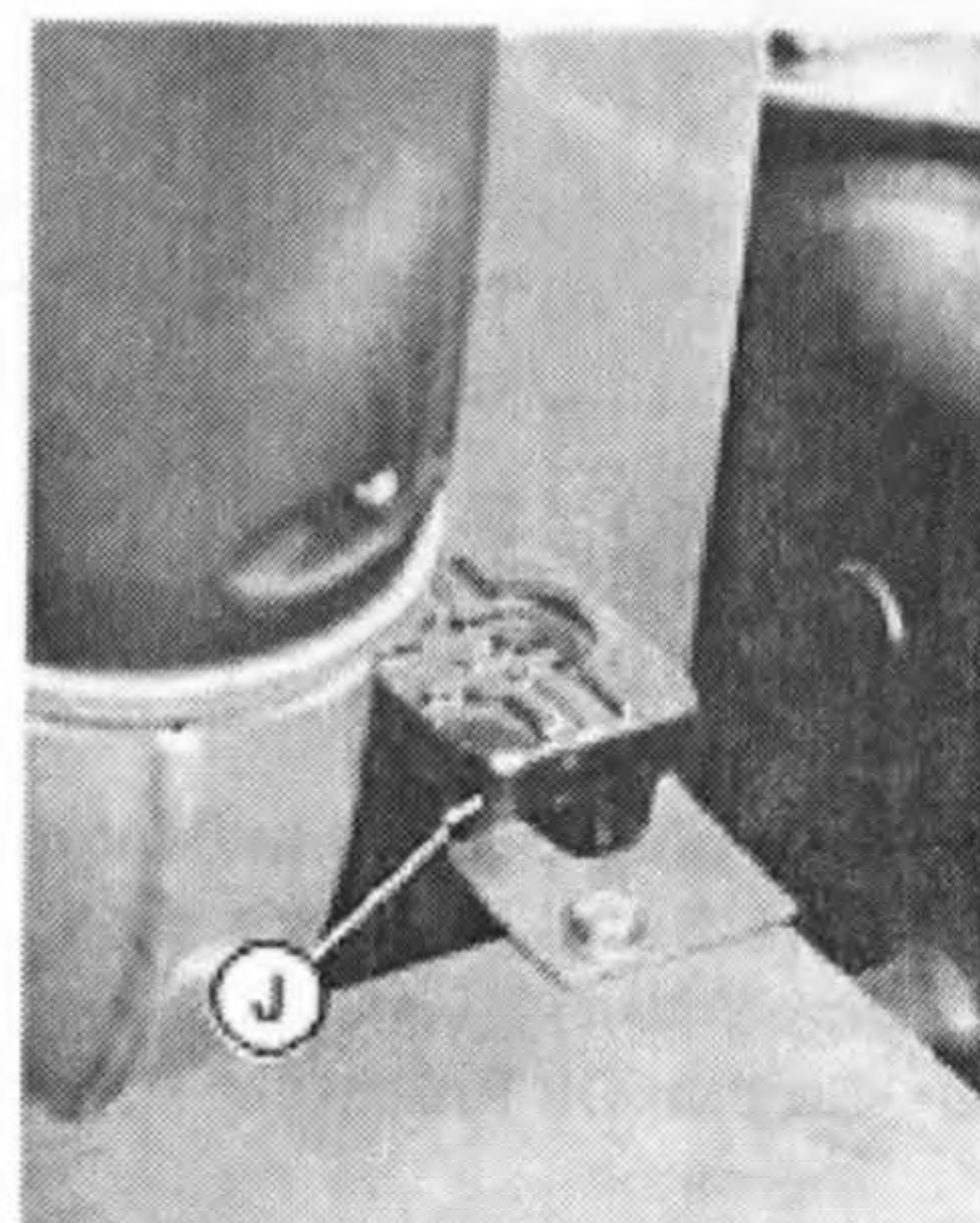
Right-Hand Side



Left-Hand Side



LV898 -UN-09JAN96



LV899 -UN-09JAN96

A—Selective Control Joystick
(Standard with Dual SCVs)
B—Selective Control Lever
(Single or Triple SCV
Option)

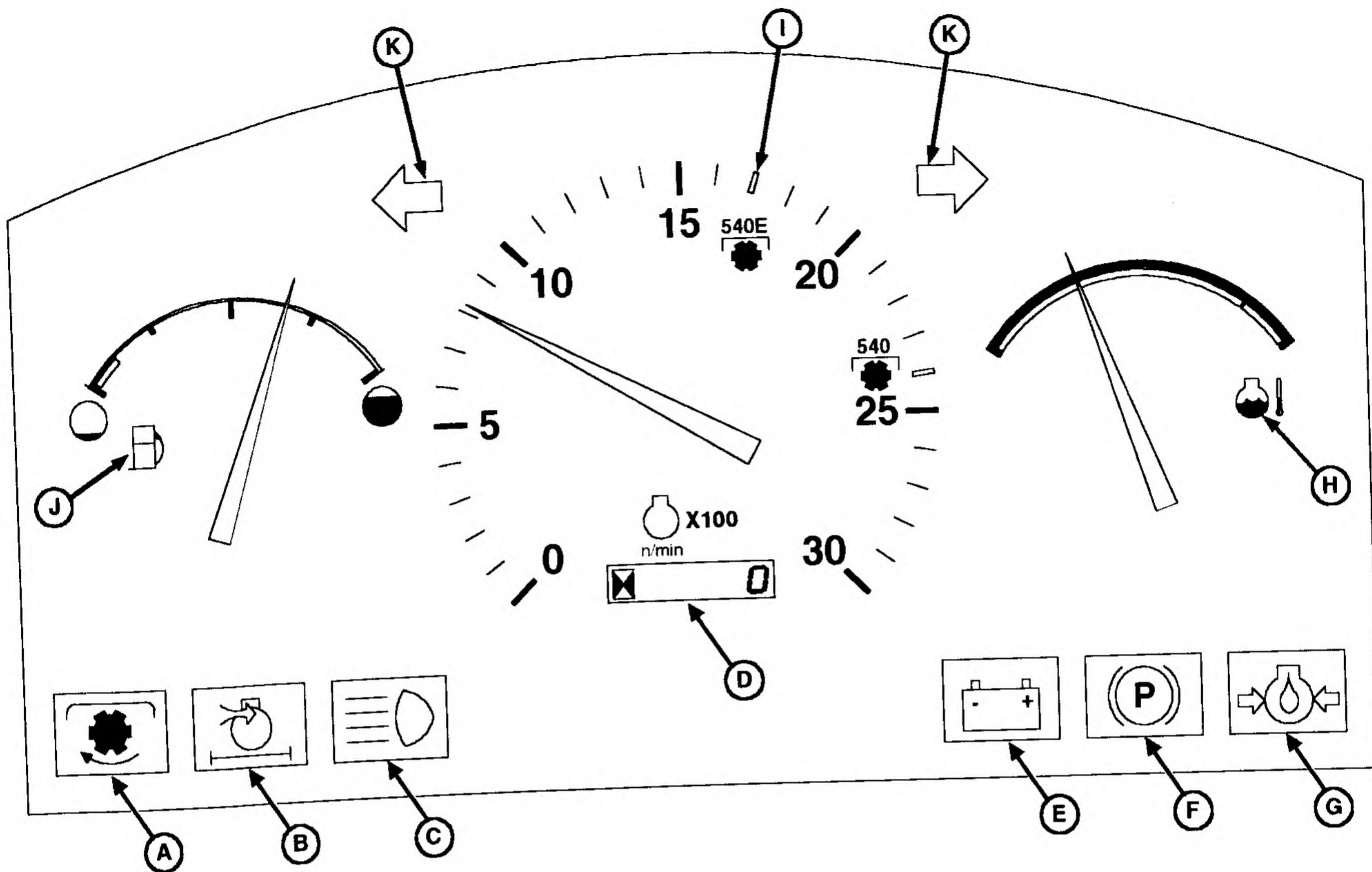
C—Rockshaft Position Control
Lever
D—Rockshaft Draft Control
Lever

E—Gear Shift Lever
F—PTO Clutch Lever
G—Mechanical Front-Wheel
Drive Shift Lever (Optional)

H—Range Shift Lever
I—Rockshaft Rate-of-Drop
Valve
J—Differential Lock Pedal

NOTE: Cab tractor shown. All controls are the same
on open station tractors.

Instrument (Dash) Panel



A—PTO Engaged Indicator
B—Air Restriction Indicator
C—High Beam Indicator
D—Hour Meter (LED Digital)

E—Charging System Indicator
F—Park Brake Indicator (See Important)
G—Engine Oil Pressure Indicator

H—Coolant Temperature Gauge
I—Tachometer (See Note)

J—Fuel Gauge
K—Turn Signal Direction Indicators

IMPORTANT: Park brake indicator (F) is not functional.

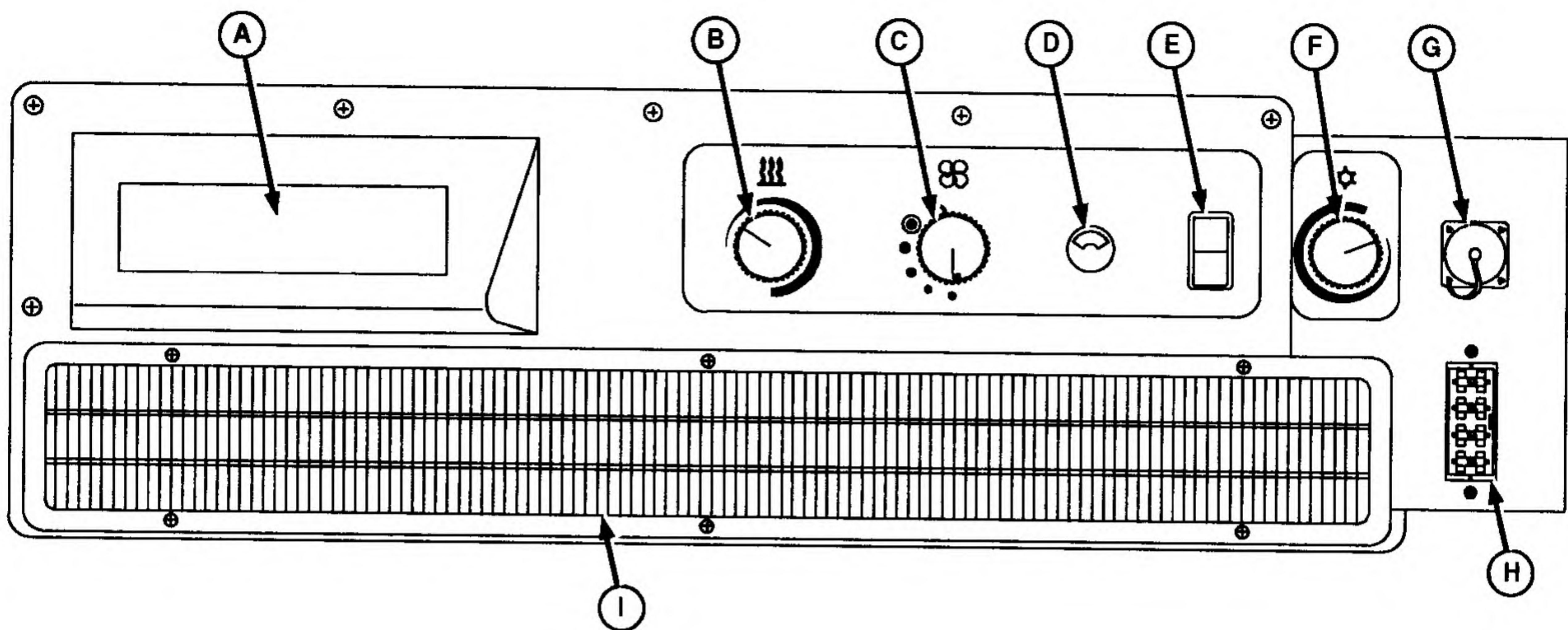
NOTE: 540E PTO is a factory installed option on SyncShuttle™ transmissions only.

SyncShuttle is a trademark of Deere & Company.

LV,5010CI,C -19-29AUG97-1/1

LV3041 -UN-16AUG99

Overhead Control Panel (Cab)



A—Radio
B—Heater Control Knob
C—Blower Speed Knob

D—Windshield Wiper/Washer Knob
E—Rear Window Wiper Switch (Optional)

F—Air Conditioning Knob
G—12-Volt Accessory Electrical Outlet

H—Cab Fuse Block
I—Recirculating Air Intake

LV.5010L,I -19-09SEP97-1/1

LV1989 -UN-04SEP97

Lights

Light Switch Positions

Tractor light switch has five positions:

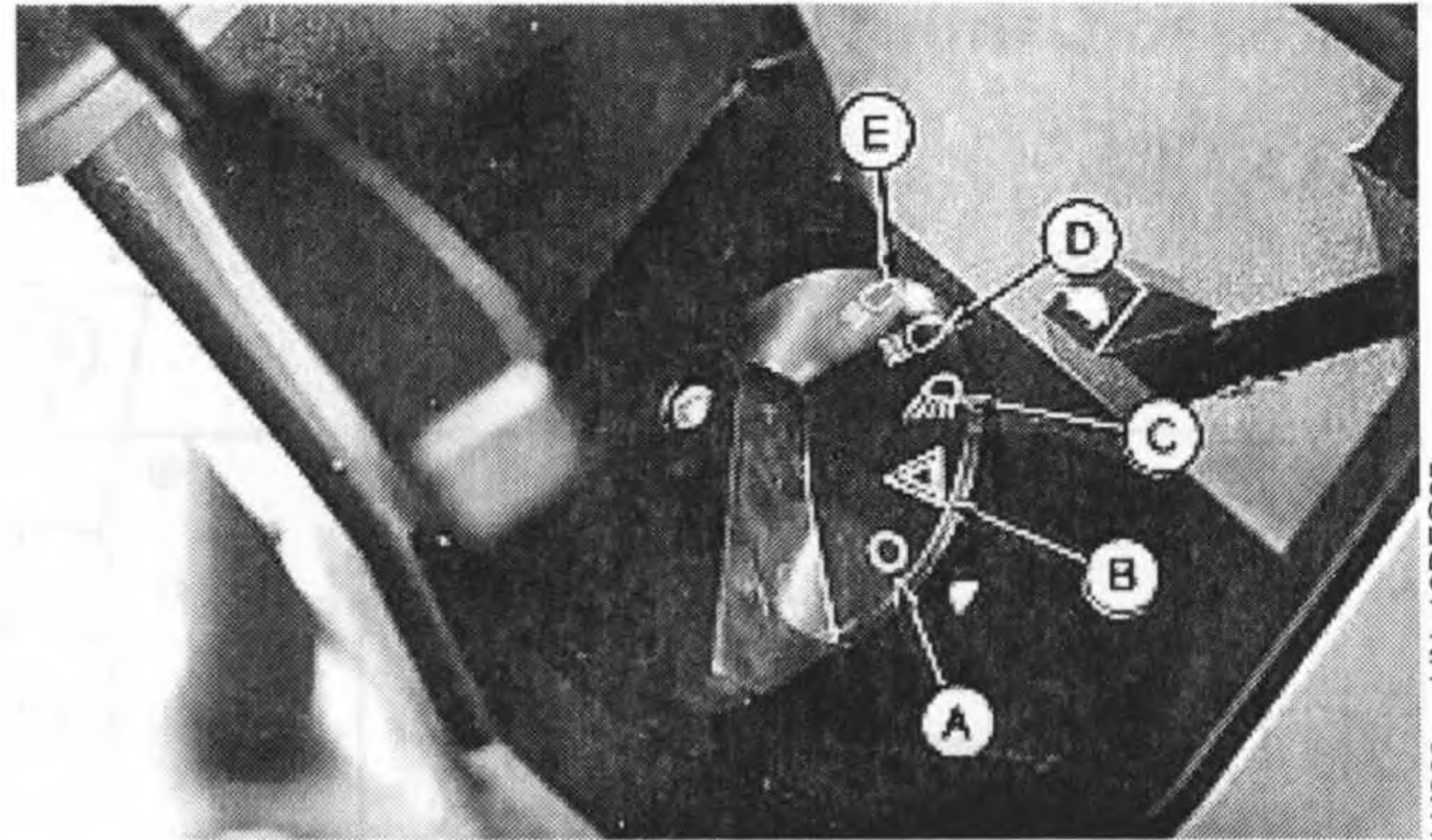
A—Turns off all lights.

B—Turns on warning lights only. For driving on highway during daytime.

C—Turns on bright headlights, fender lights (5410 and 5510) and rear flood light(s), if equipped. For field use only. Do not use on roads. Flood/fender lights might blind or confuse other drivers.

D—Turns on bright headlights, tail light(s), and warning lights. For highway driving during daytime or nighttime.

E—Turns on dim headlights, tail light(s), and warning lights. Turn switch to this position before meeting other vehicles.



LV862 -UN-19DEC95

- A—Lamps Off
- B—Warning Lights Position
- C—Bright Headlights, Fender Light (5410 and 5510) and Rear Flood Lights Position
- D—Bright Headlights, Tail Light(s) and Warning Lights Position
- E—Dim Headlights, Tail Light(s) and Warning Lights Position

LV,5010L,A -19-06JUN97-1/1

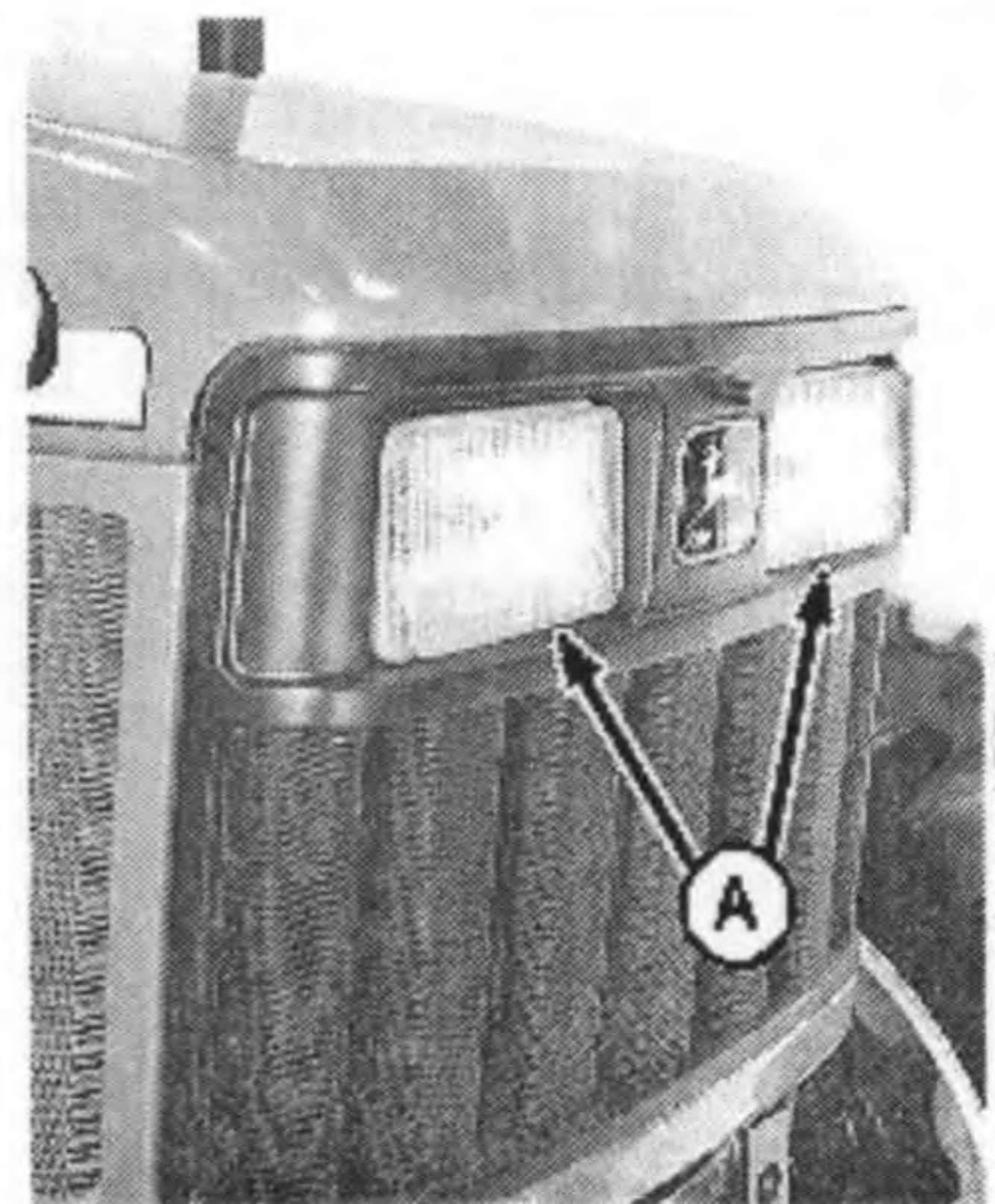
Using Headlights

Dual-beam headlights (A) are switched on by either "Flood Light" (B), "Bright Headlight" (C), or "Dim Headlight" (D) light switch positions.

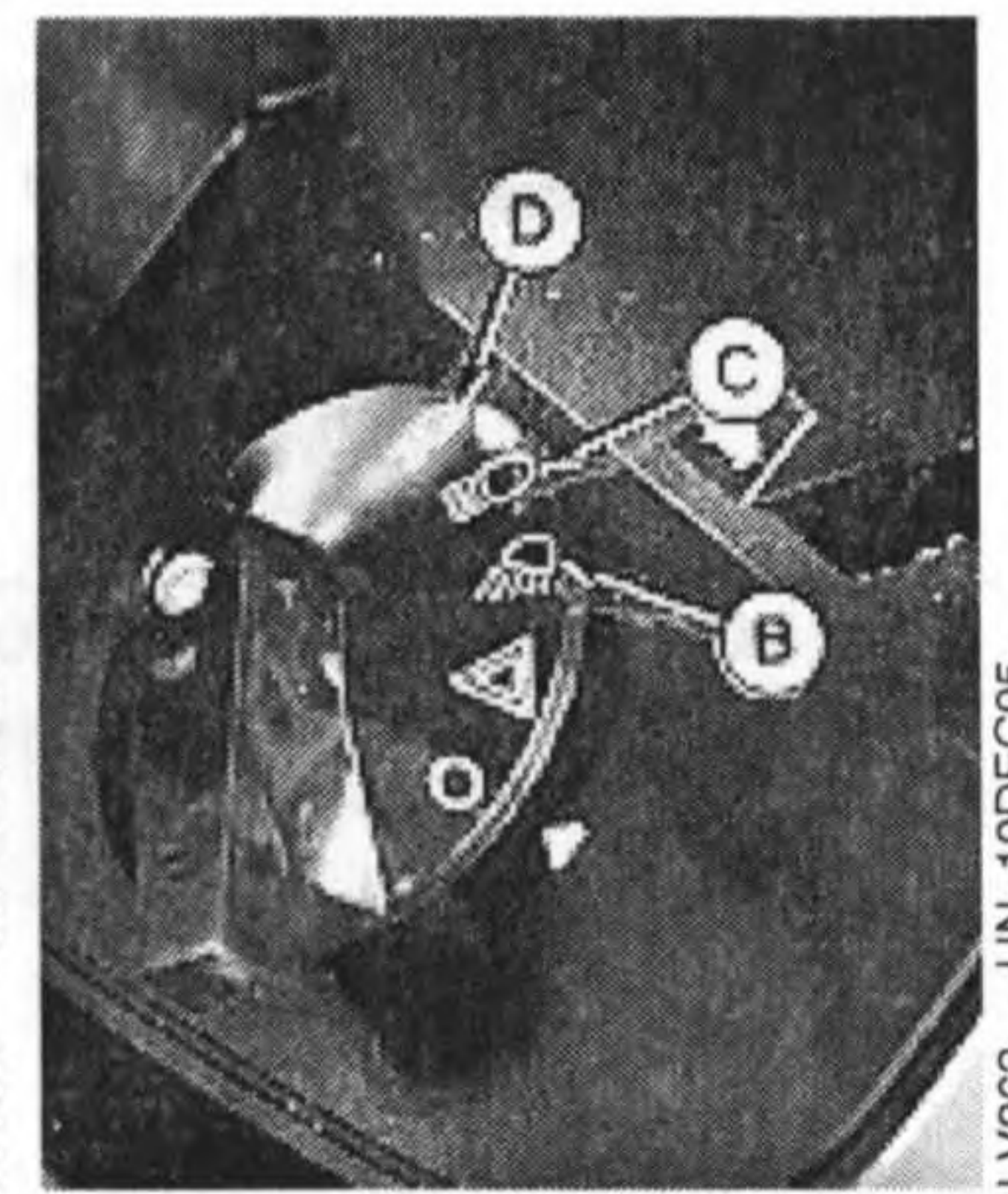
Always dim lights before meeting another vehicle.

Keep headlights adjusted properly, (see Adjusting Headlights in Service section).

- A—Headlights
- B—Bright Headlights, Fender Light (5410 and 5510) and Rear Flood Light Position
- C—Bright Headlights, Tail Light(s) and Warning Lights Position
- D—Dim Headlights, Tail Light(s) and Warning Lights Position



LV1957 -UN-25APR97



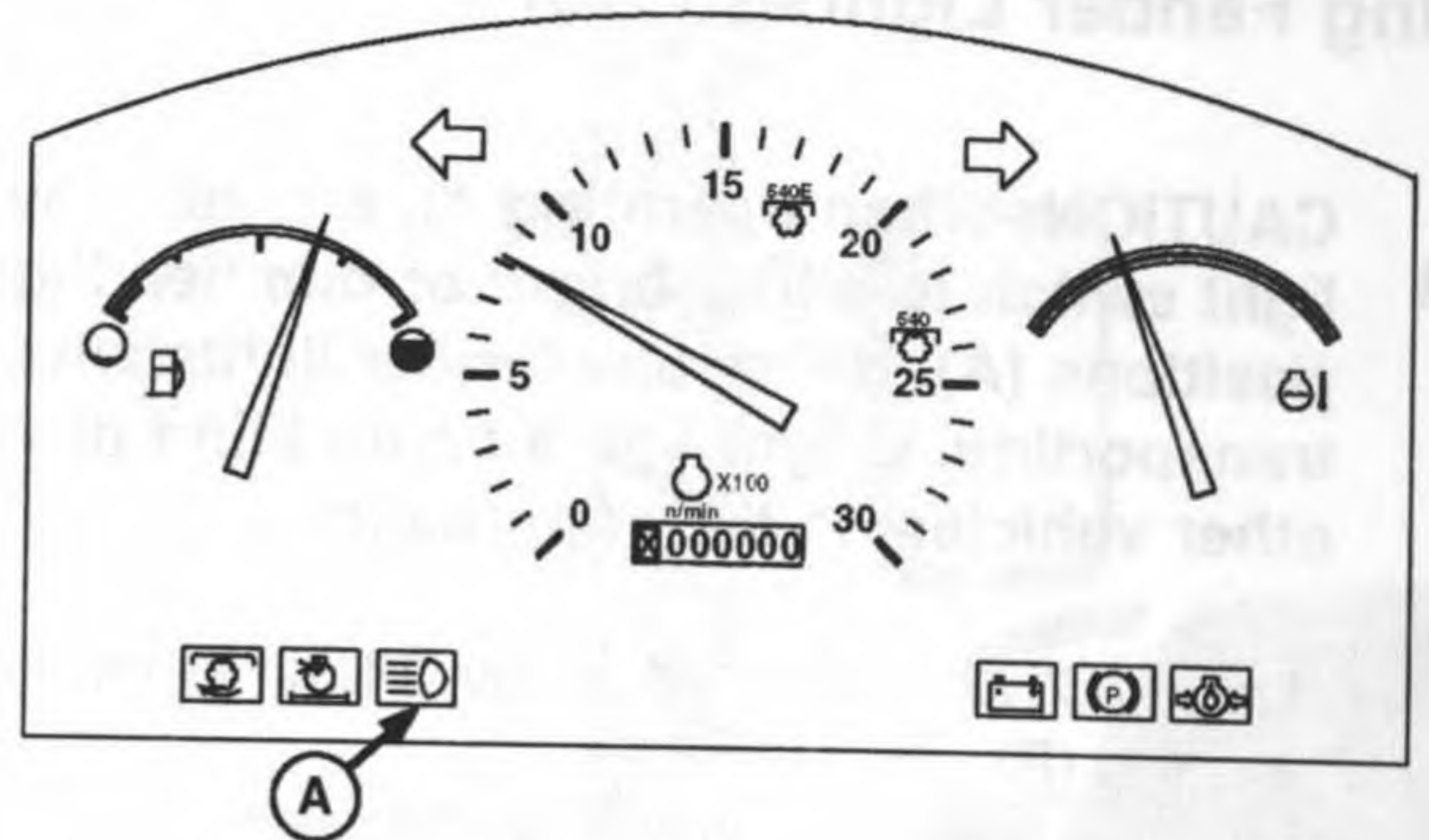
LV863 -UN-19DEC95

LV,5010L,B -19-28MAY99-1/1

High Beam Indicator

High beam indicator (A) should glow when light switch is turned to "Bright Headlight" position and "Flood Light" position. Bright headlights, tail lights, flood light(s), fender lights (5410 and 5510) and warning lights should be on.

A—High Beam Indicator



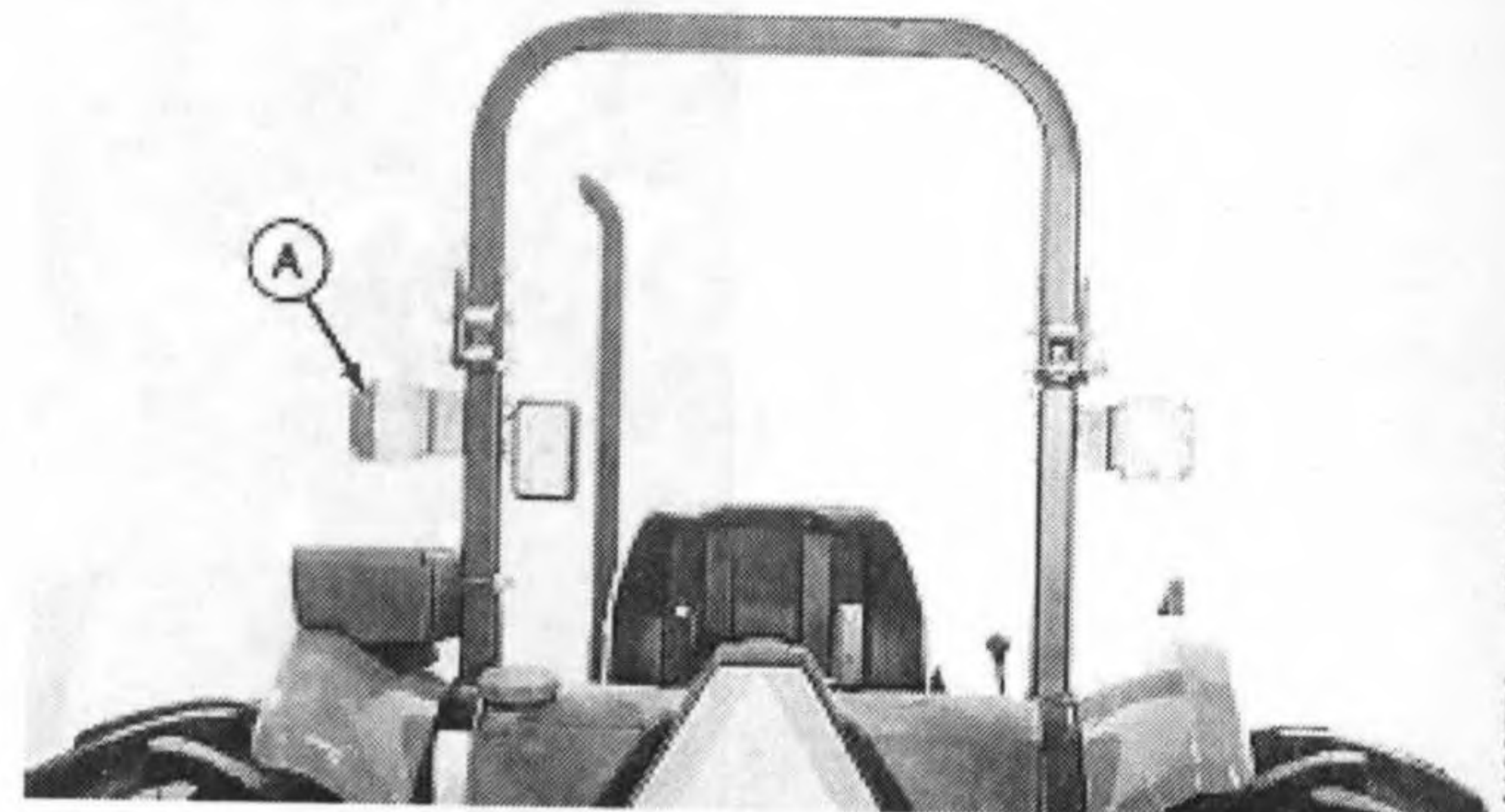
LV,5010L,C -19-06JUN97-1/1

Using Tail Lights

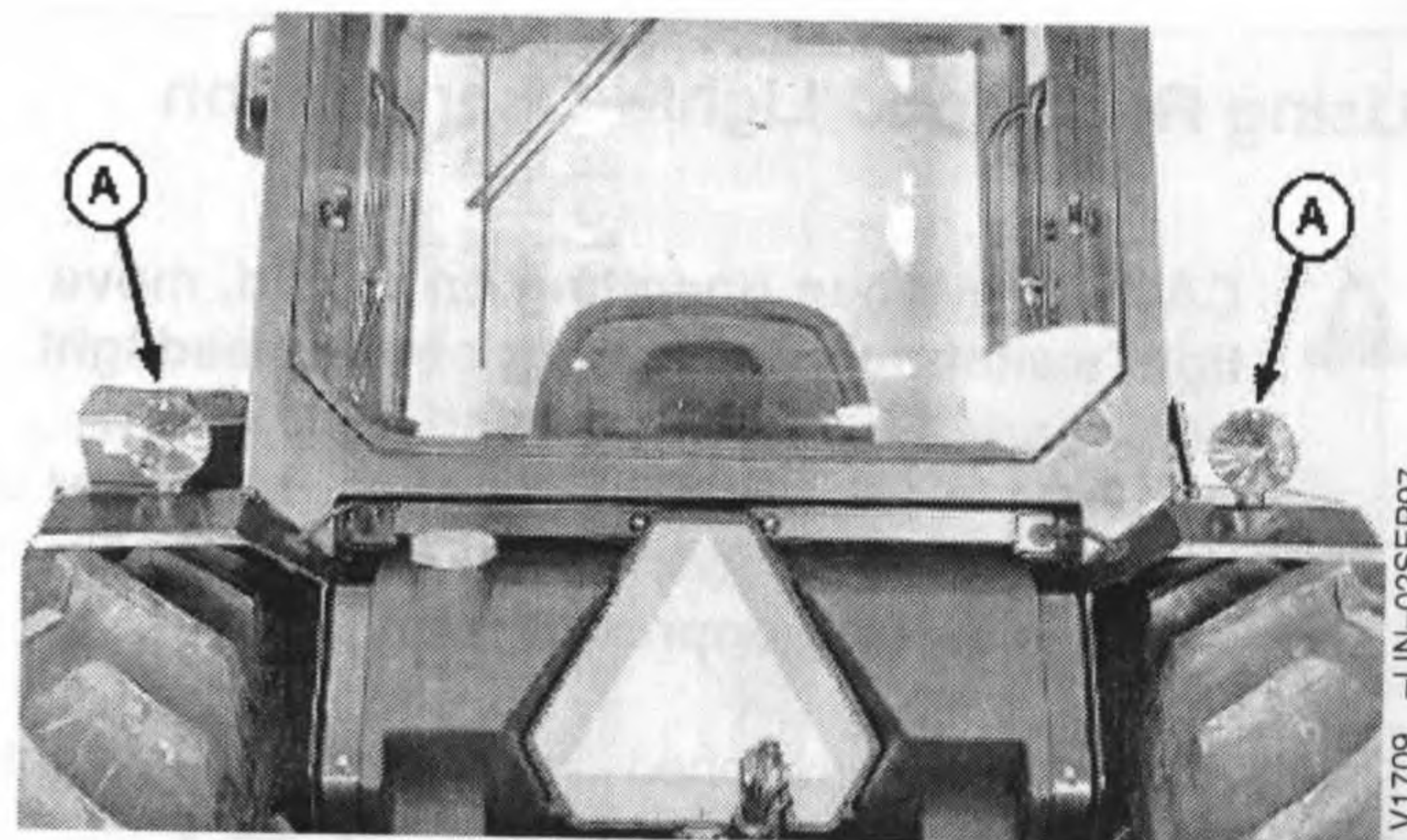
Red tail light(s) (A) are switched on by either bright headlight (B), or dim headlight (C) light switch position.

Be sure tail light lens(es) are clean before driving on a road, so other drivers can see it easily.

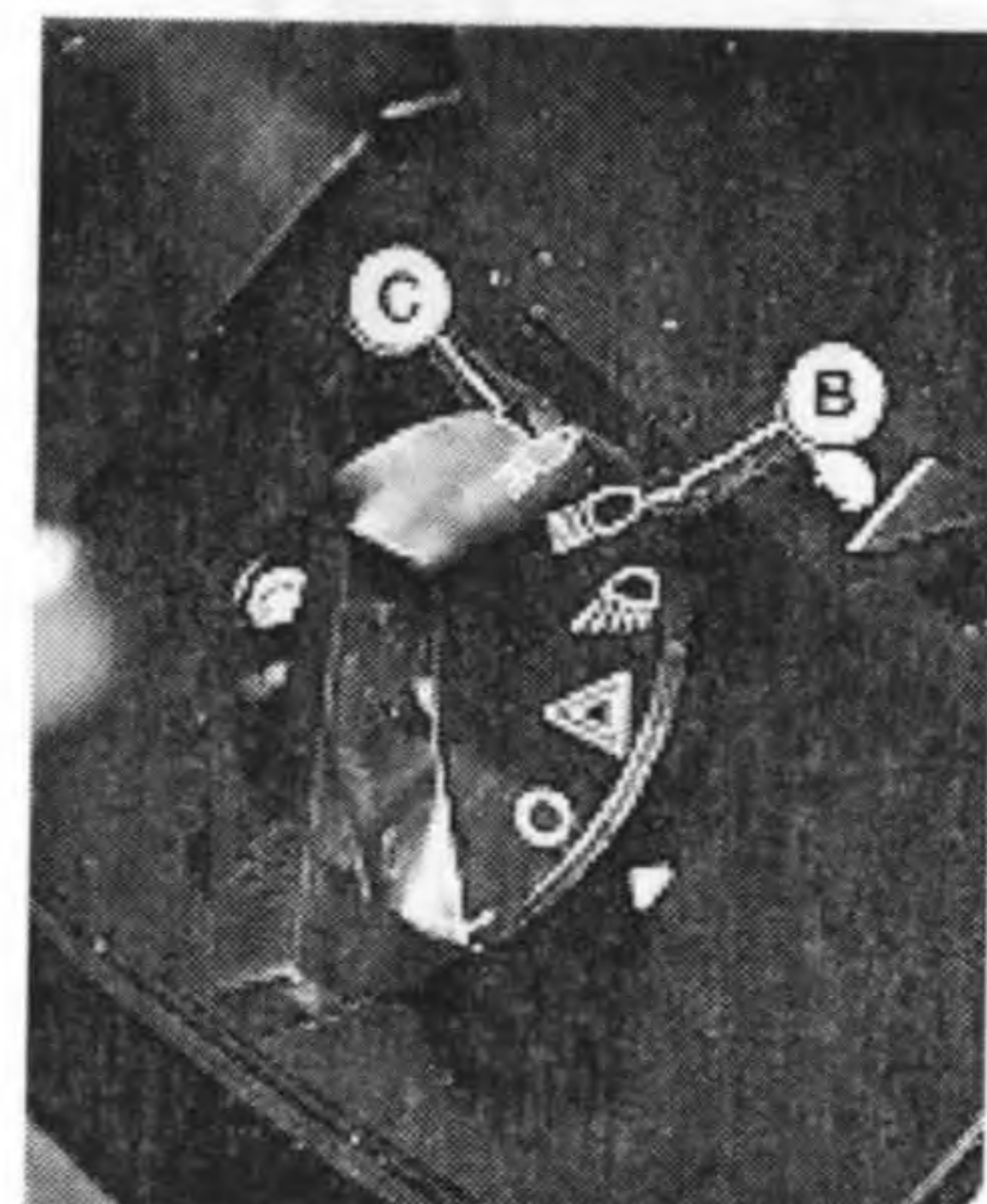
A—Red Tail Light(s)
B—Bright Headlight
C—Dim Headlight



Open Station Tractor



Cab Tractor (Early Models Shown)



LV865 -UN-19DEC95

LV,5010L,D -19-01JUN99-1/1

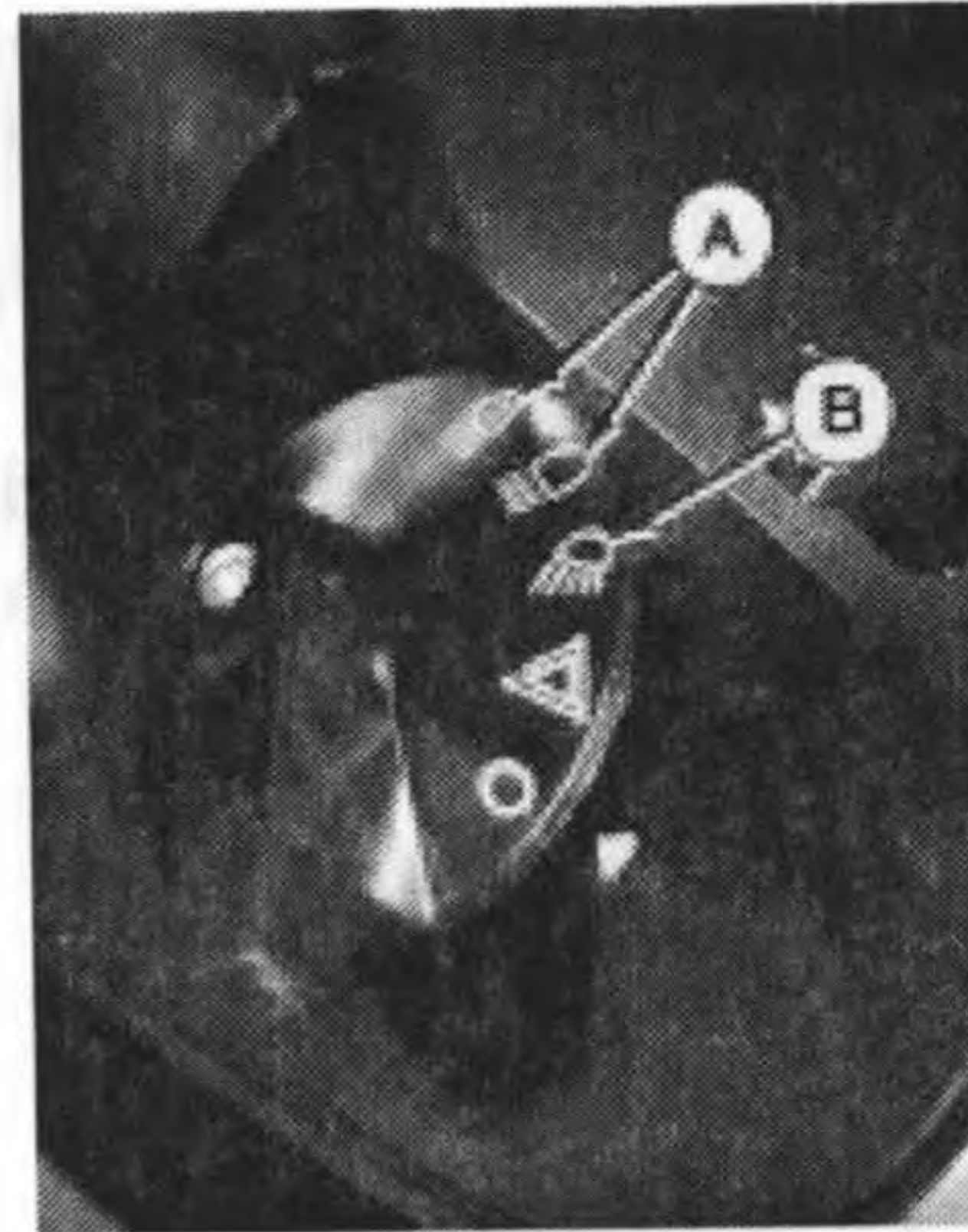
Using Fender Lights (5510)



CAUTION: When operating on a road, move light switch to either bright or dim headlight positions (A). Never use fender lights when transporting. Bright lights could blind drivers of other vehicles as they approach.

Fender lights (C) are switched on by "Flood Light" light switch position (B).

- A—Bright or Dim Headlight Position
- B—Flood Light Position
- C—Fender Lights



LV1511 -UN-29FEB96



LV1710 -UN-04JUN97

LV,5010L,E1 -19-25FEB99-1/1

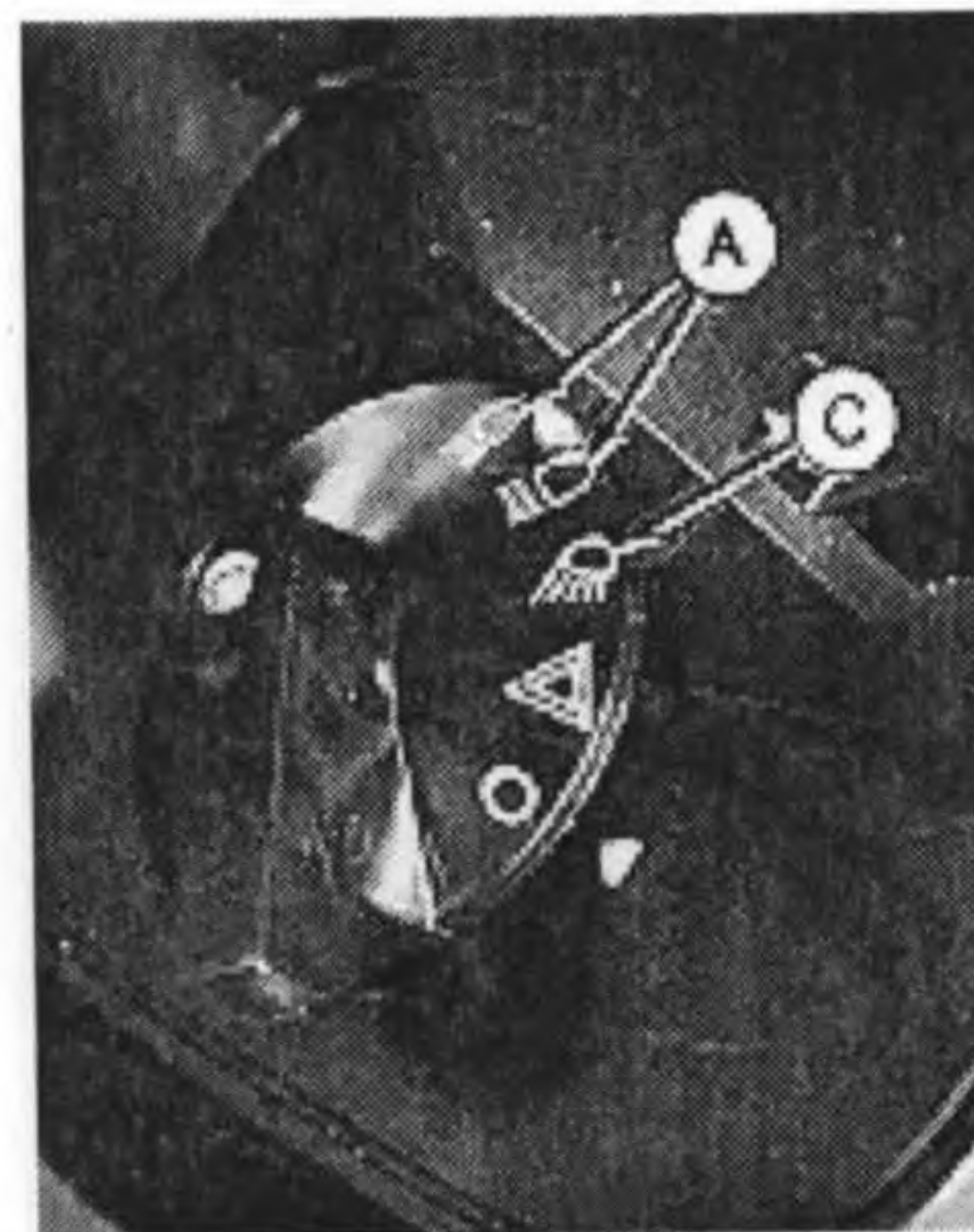
Using Rear Flood Light—Open Station



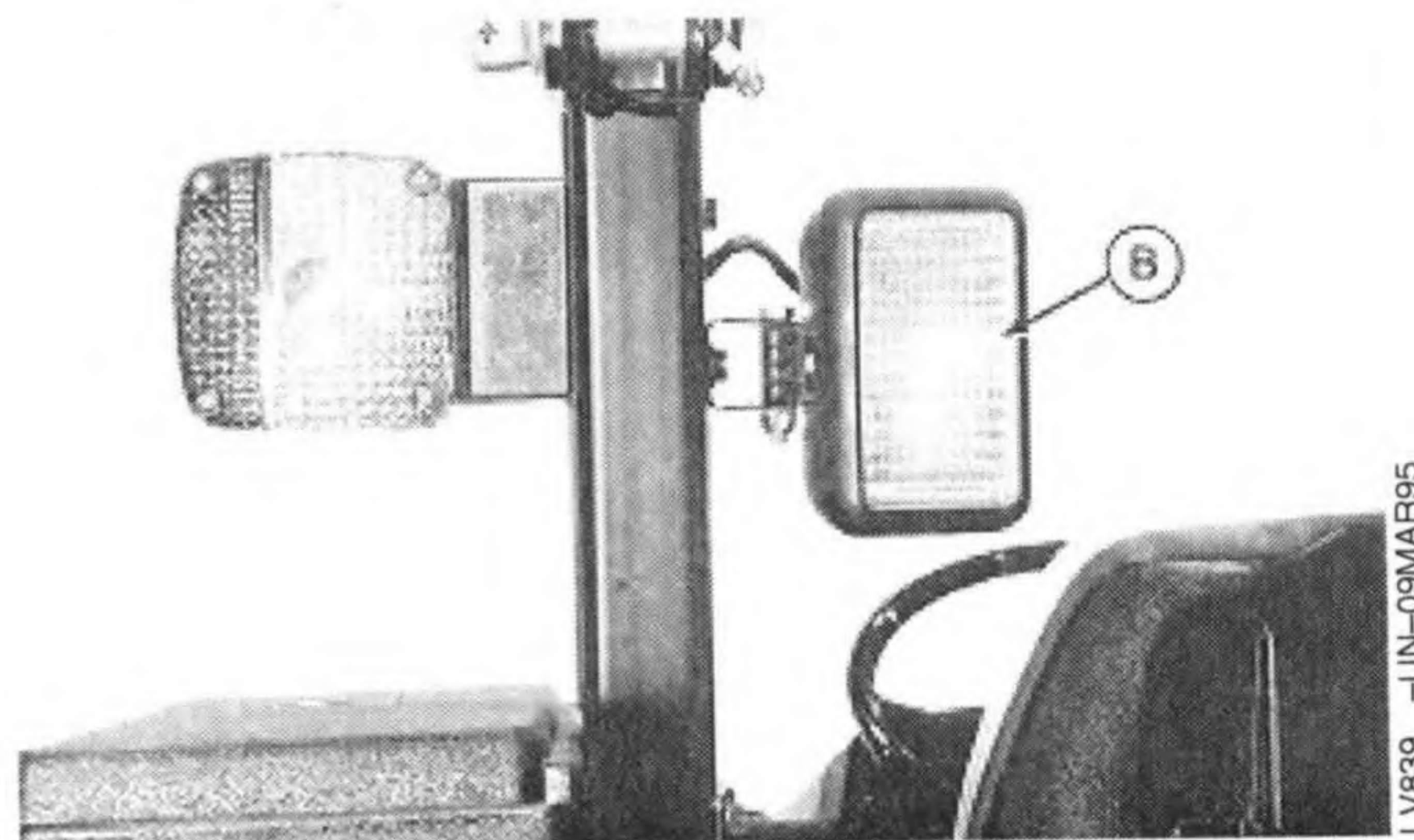
CAUTION: When operating on a road, move light switch to either bright or dim headlight positions (A). Never use flood light when transporting. A clear, bright light at the rear of the tractor could confuse drivers of other vehicles as they approach from the rear.

Rear flood light (B) is switched on by "Flood Light" light switch position (C).

- A—Bright or Dim Headlight Position
- B—Rear Flood Light
- C—Flood Light Position



LV866 -UN-19DEC95



LV839 -UN-09MAR95

LV,5010L,F -19-01JUN99-1/1

Adjusting Rear Flood Light—Open Station

1. Loosen mounting hardware (A).
2. Turn flood light to desired position.
3. Tighten hardware securely.

A—Flood Light Mounting Hardware



M47151A -UN-09MAR95

MX,CTIP,KA3 -19-10JAN96-1/1

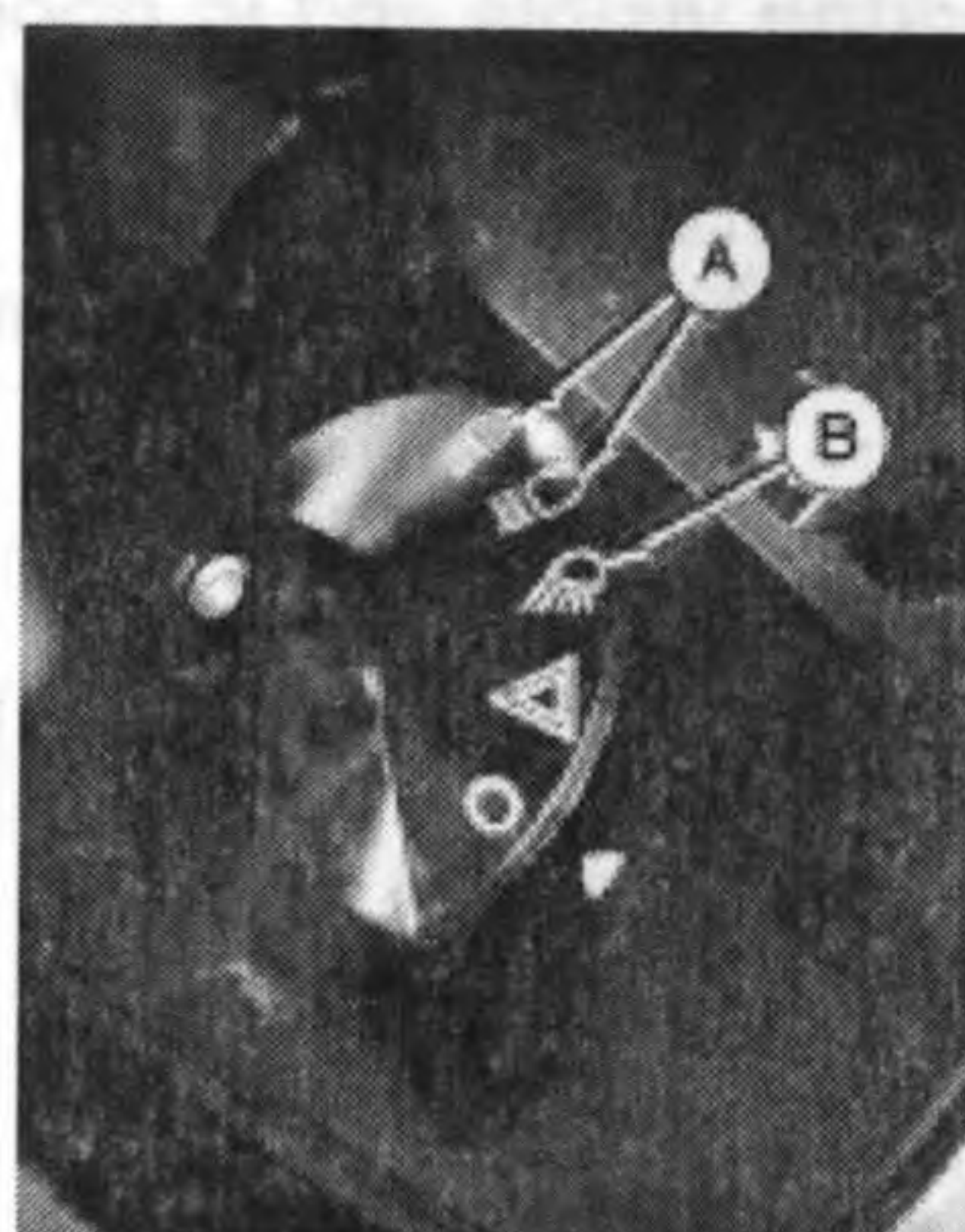
Using Flood Lights—Cab

CAUTION: When operating on a road, move light switch to either bright or dim headlight positions (A). Never use flood lights when transporting. Clear, bright lights at the rear of the tractor could confuse drivers of other vehicles as they approach from the rear.

NOTE: Front and rear flood lights adjust freely by hand; up, down, left or right.

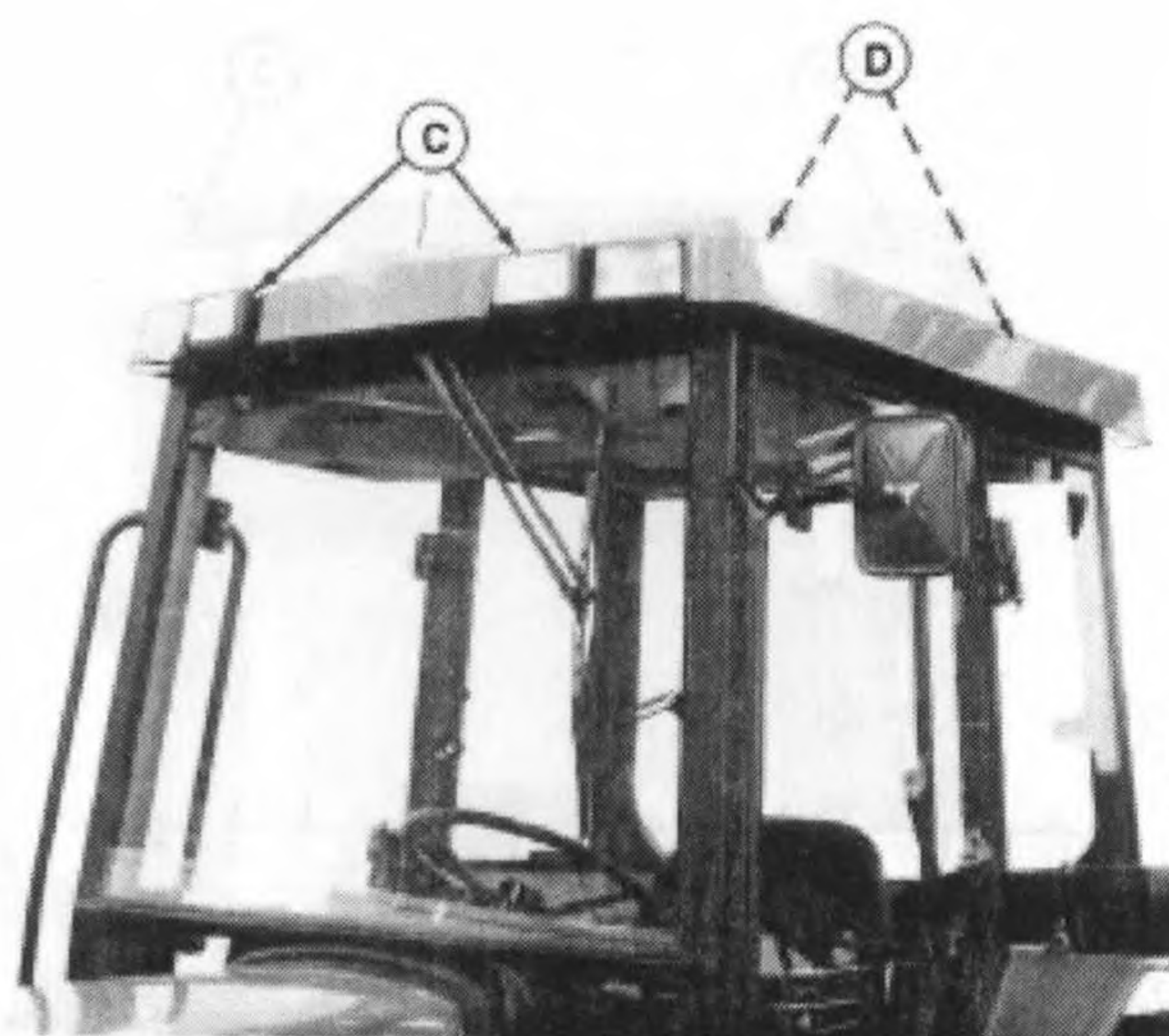
Both front and rear flood lights (C and D) are switched on by "Flood Light" light switch position (B).

- A—Bright or Dim Headlight Positions
- B—Flood Light Position
- C—Front Flood Light
- D—Rear Flood Lights



LV1511 -UN-29FEB96

Dash Panel



LV1512 -UN-29FEB96

MX,CTIP,NA4 -19-01JUN99-1/1

Using Warning Lights

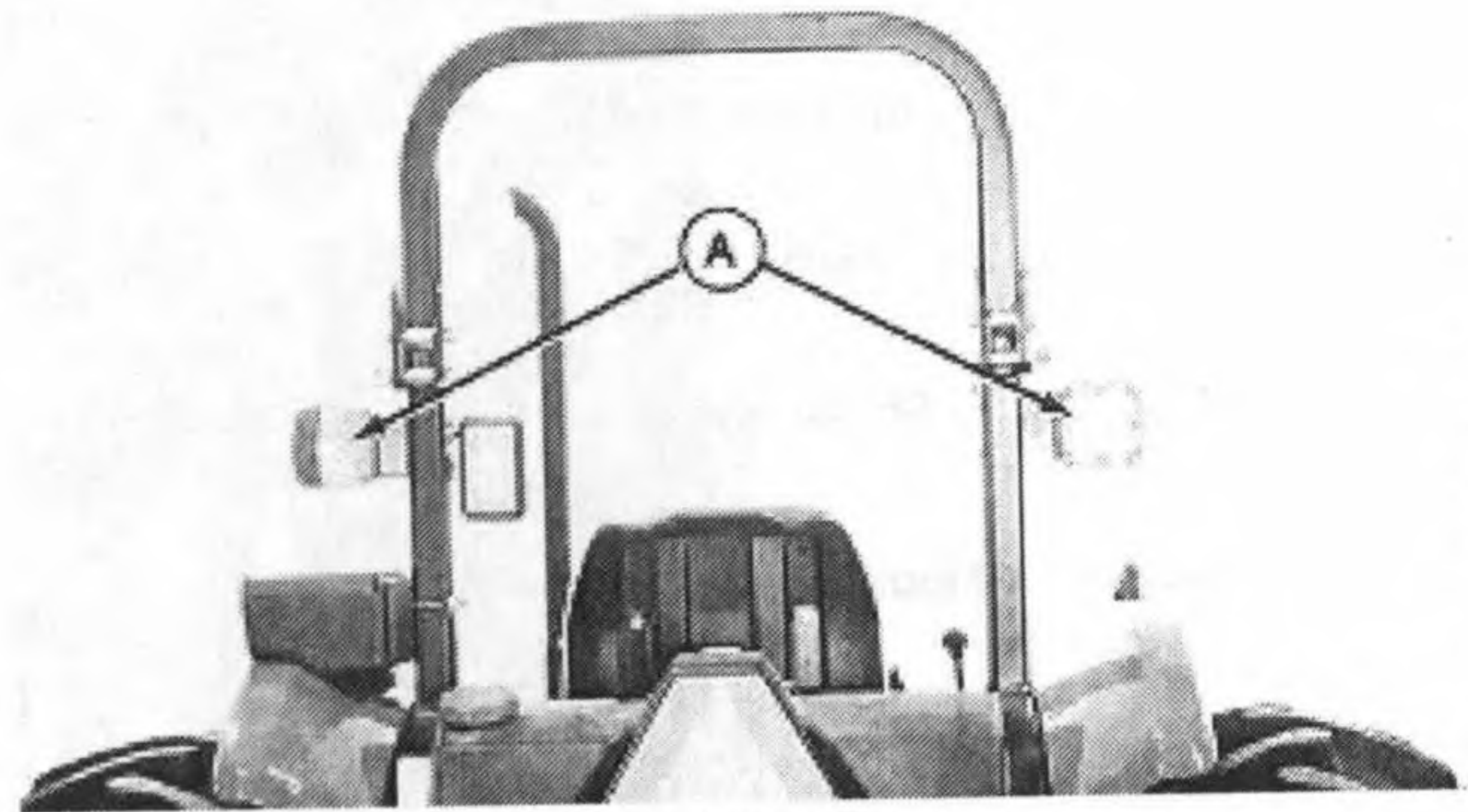


CAUTION: Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use hand signals or turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.

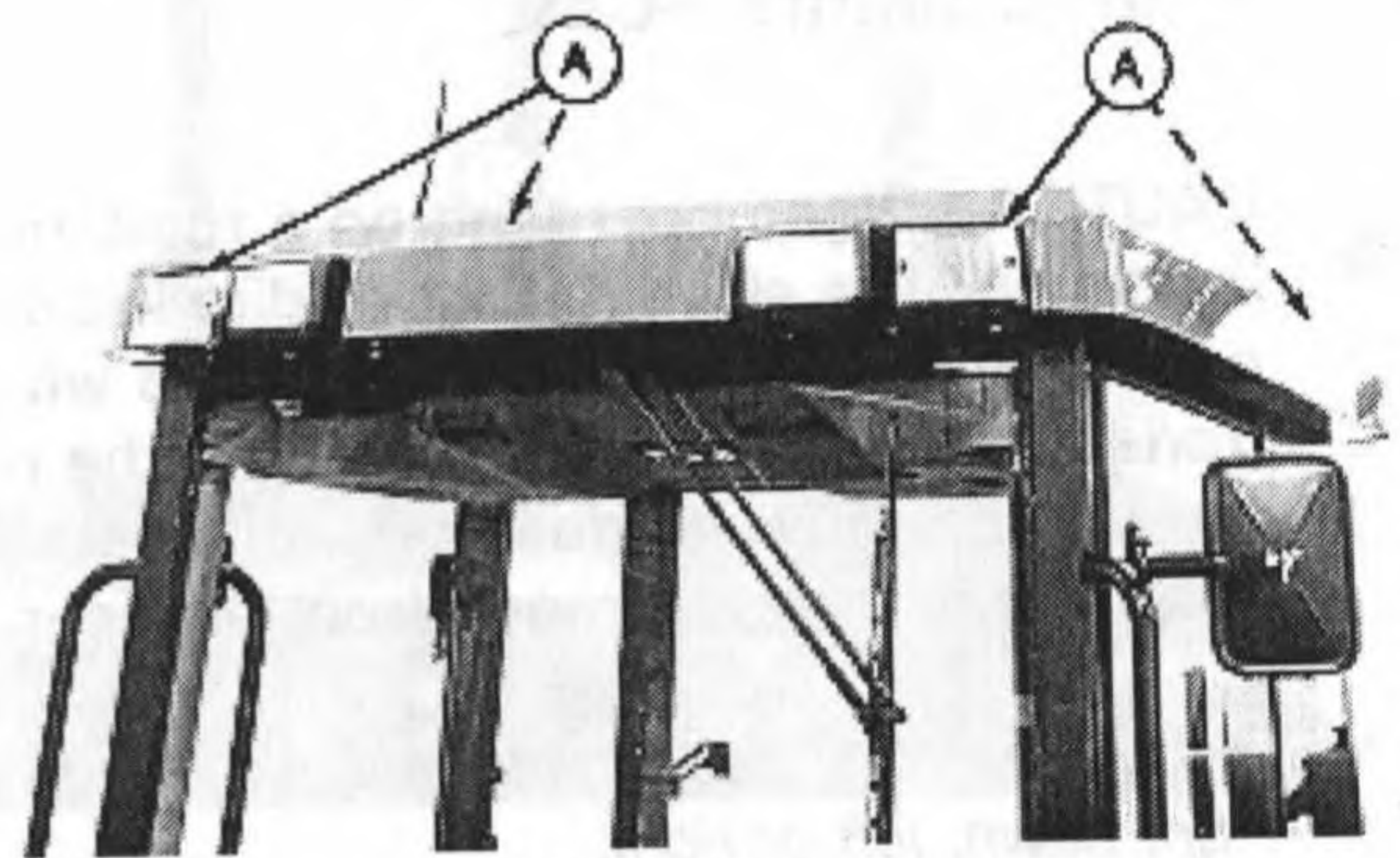
Warning lights (A) are switched on in either "Warning Light" (B), "Bright Headlight" (C), or "Dim Headlight" (D) light switch position.

- A—Warning Lights
- B—Warning Light Switch Position
- C—Bright Headlight Switch Position
- D—Dim Headlight Switch Position



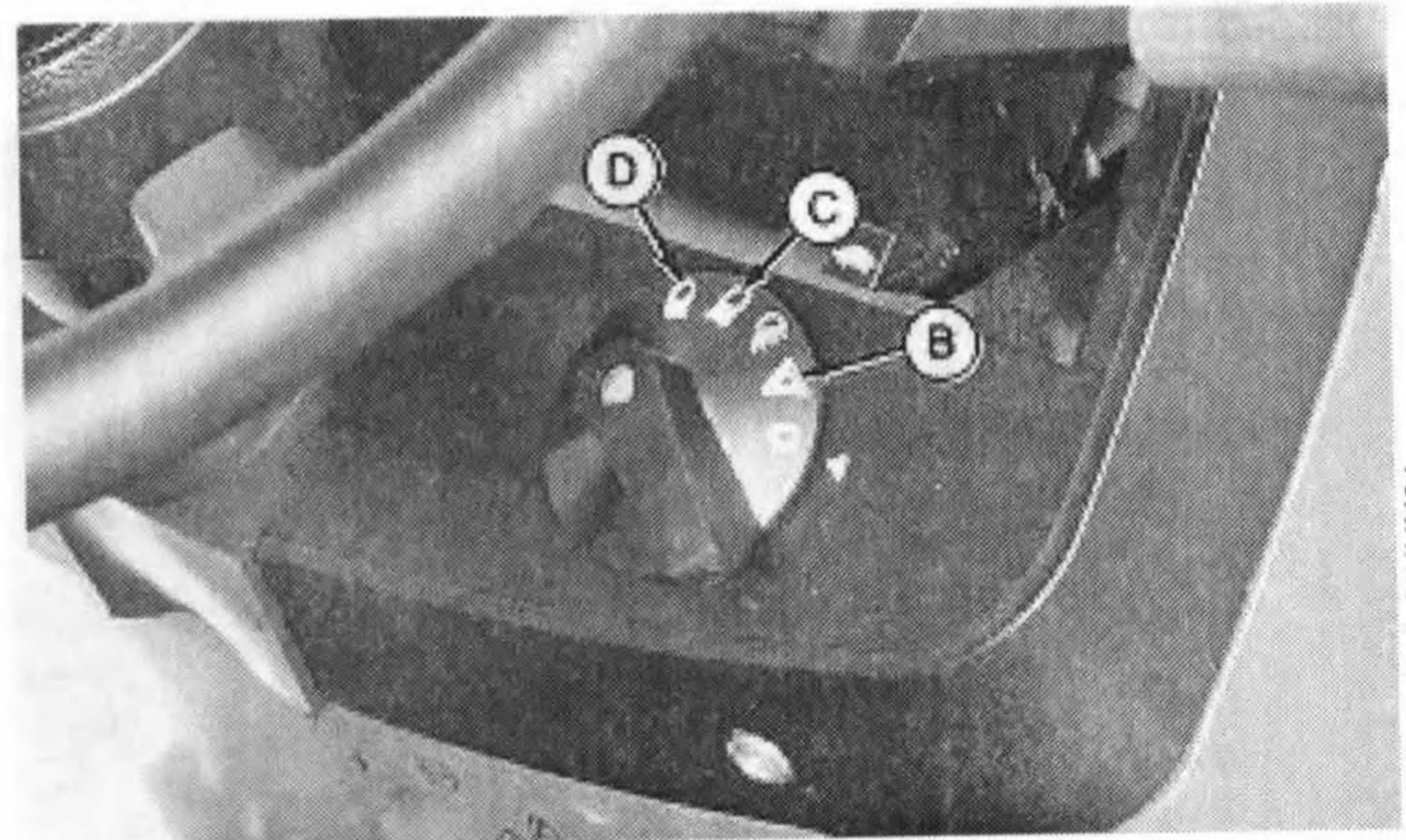
Open Station Tractor

M46361A -UN-09MAR95



Cab Tractor

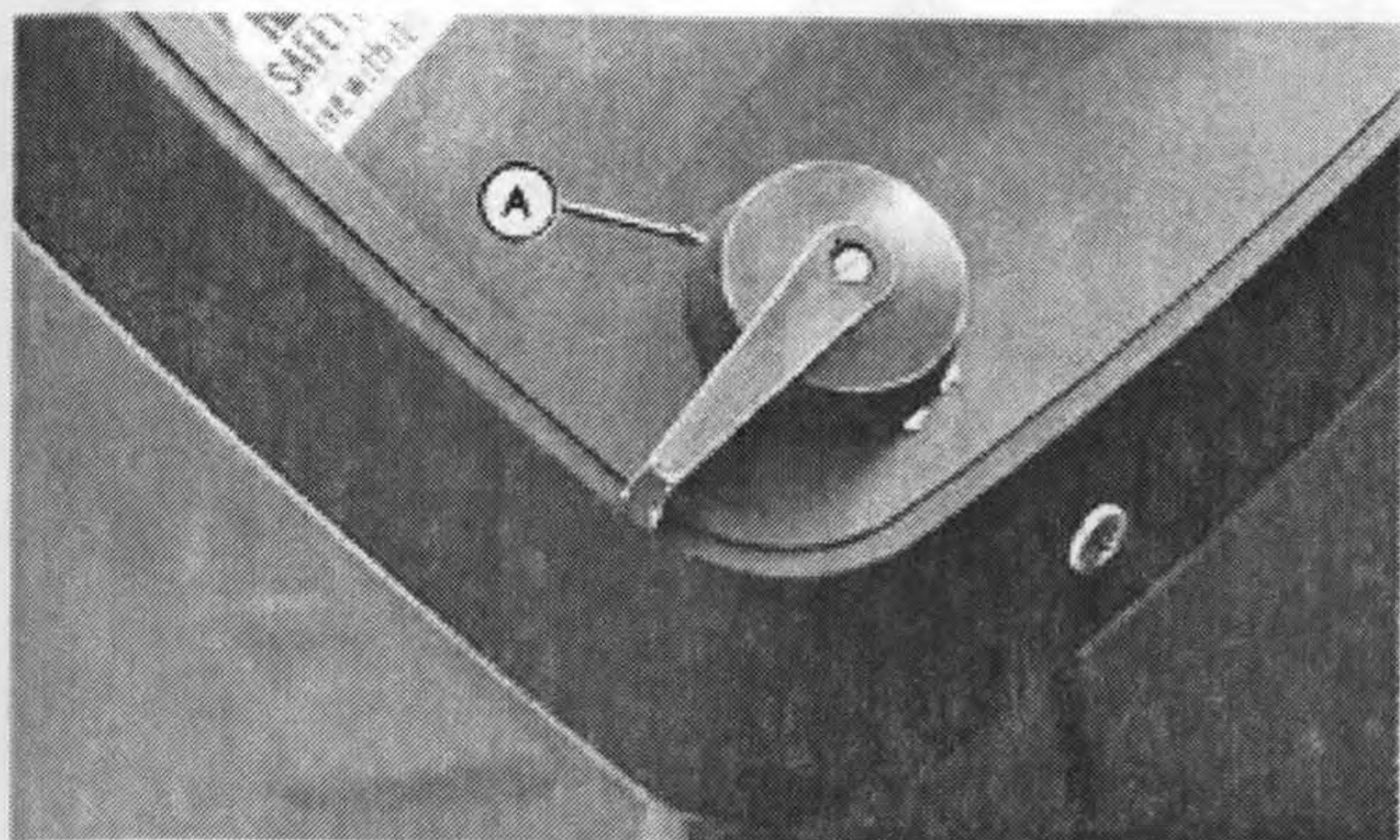
LV869 -UN-19DEC95



LV801 -UN-29JUN94

LV,5010L,G -19-01JUN99-1/1

Using Turn Signals



M46363 -UN-31JAN92

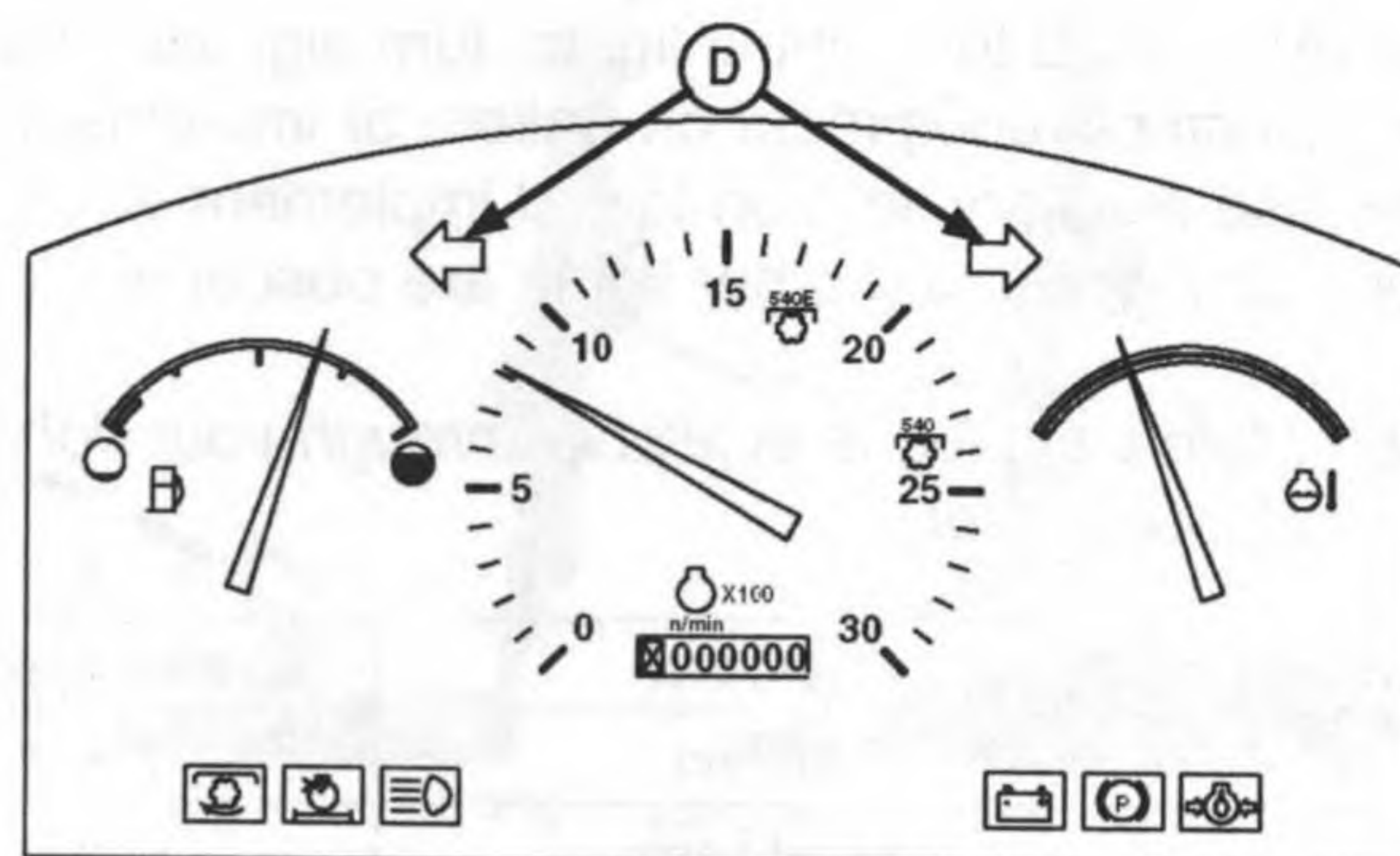
Move turn signal lever (A) down to indicate left-hand turn or up for right-hand turn. Indicator lights (D) will flash to signal turn direction.

Open Station: When lever is up, front and rear facing lights on right-hand side (B) will flash while left-hand lights (C) glow steady. Left-hand lights flash and right-hand lights glow steady when lever is down.

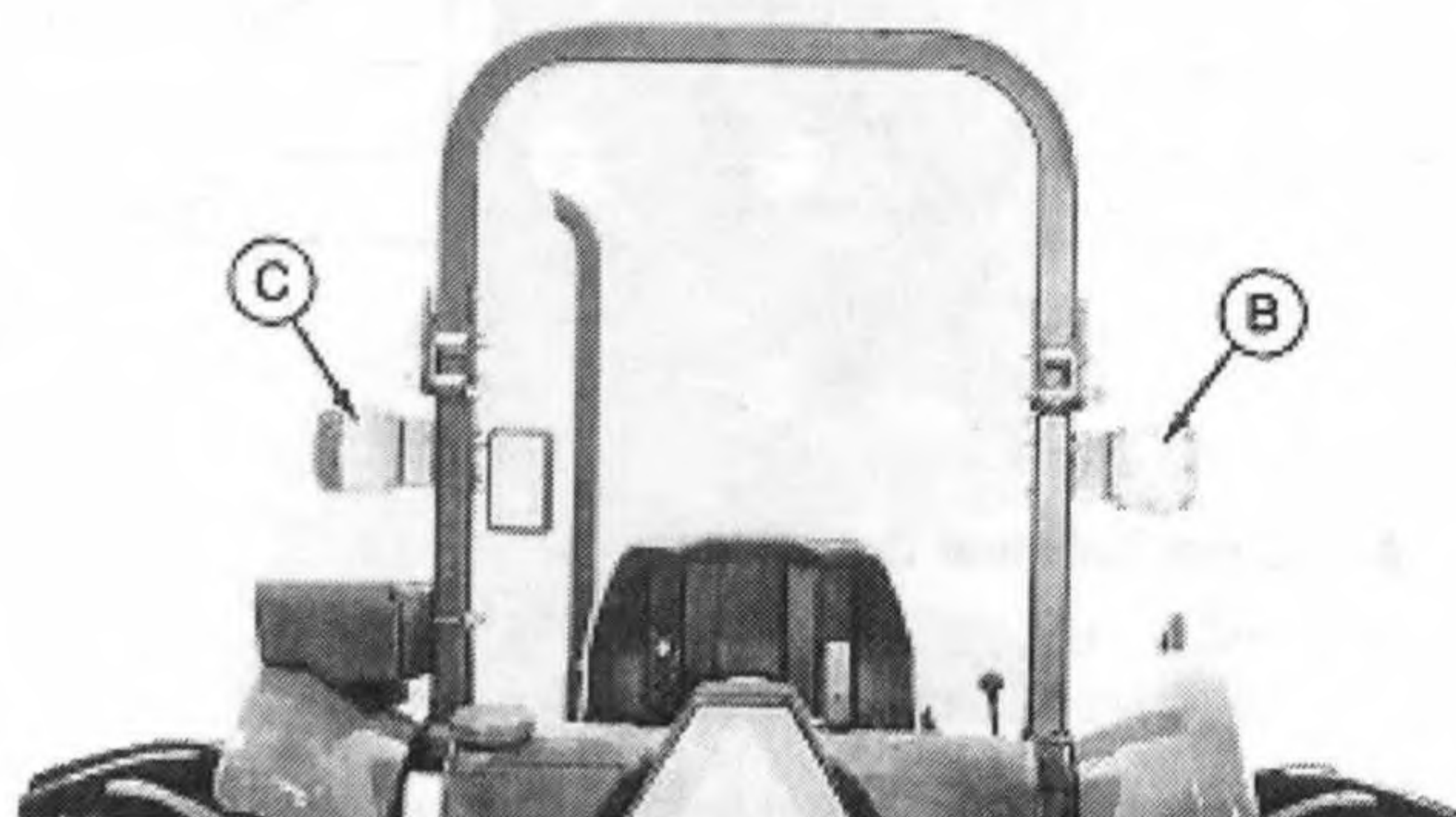
Cab: When lever is up, right-hand tail light (F) and front and rear facing lights (B) will flash while left-hand lights (C) glow steady. Left-hand tail light (E) and lights (C) flash and right-hand lights glow steady when lever is down.

NOTE: Be sure to manually return lever to center position after turning.

- A—Turn Signal Lever
- B—Right-Hand Lights
- C—Left-Hand Lights
- D—Dash Indicator Lights
- E—Left-Hand Tail Light (Cab)
- F—Right-Hand Tail Light (Cab)

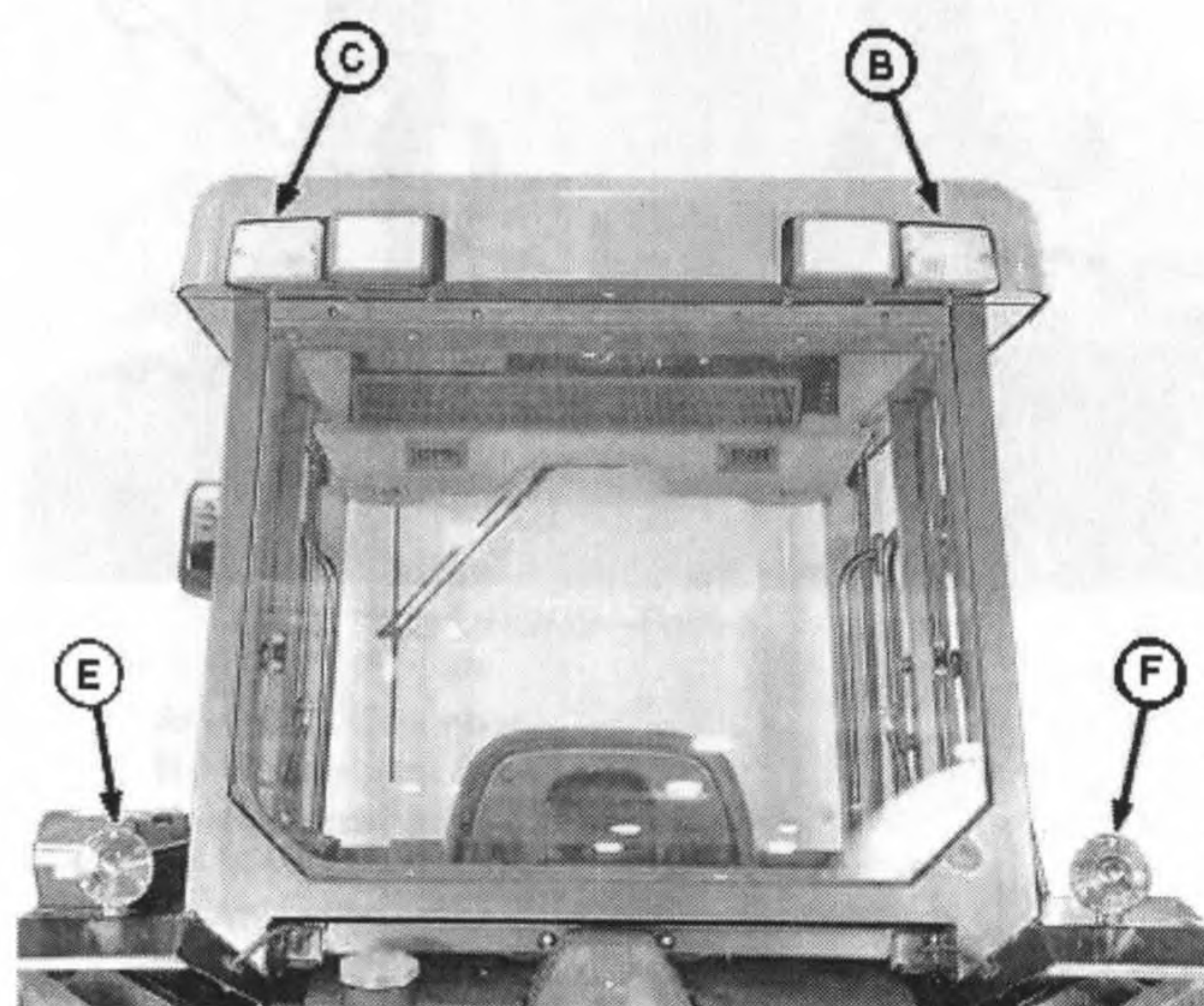


LV1711 -UN-29MAY97



Open Station Tractor—Rear View

M46364A -UN-09MAR95



Cab Tractor—Rear View

LV1962 -UN-26AUG97

LV,5010L,H -19-29AUG97-1/1

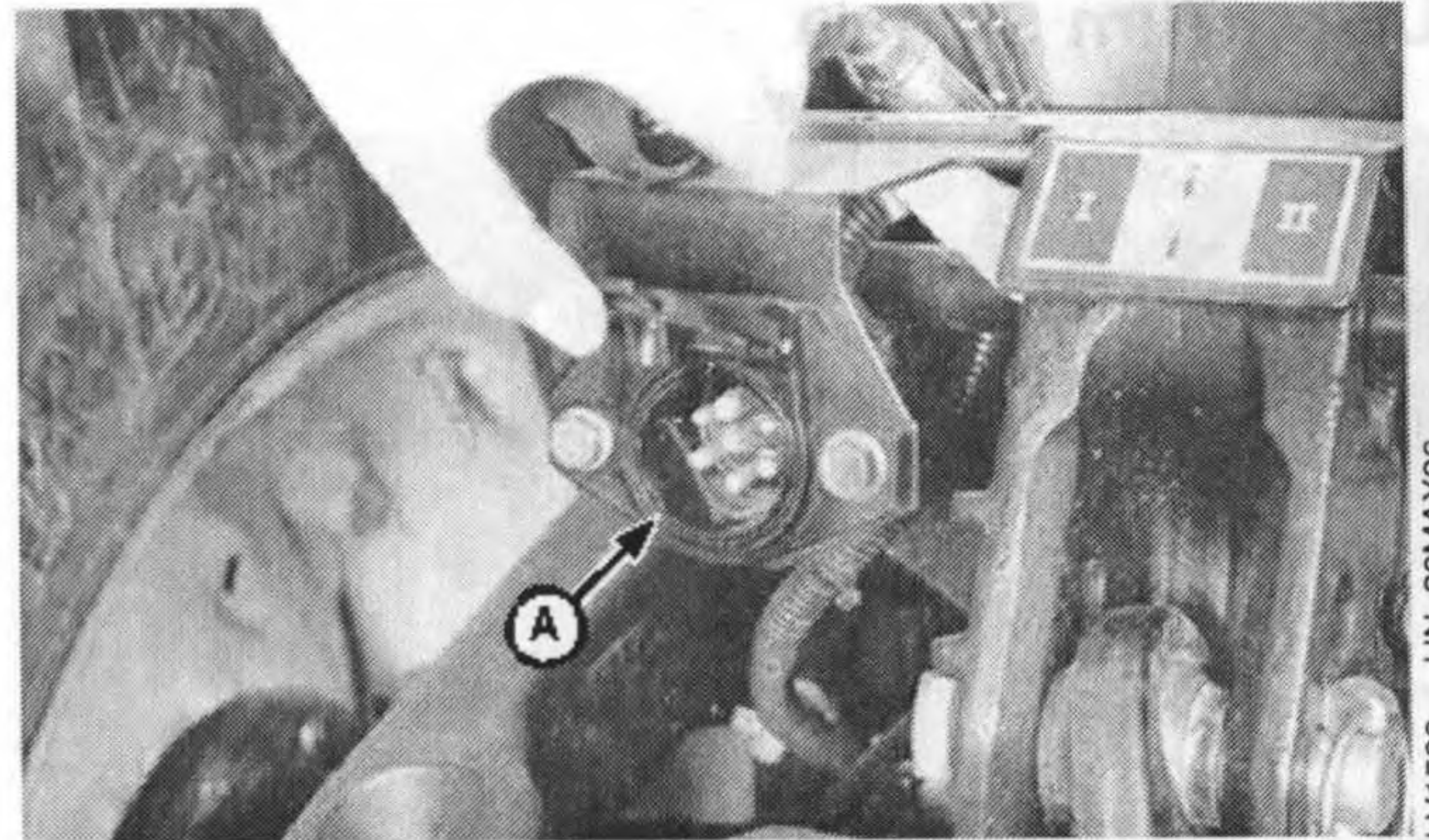
Seven-Terminal Outlet—If Equipped

Outlet (A) is used to connect lights, turn signals, and remote electrical equipment on trailers or implements. Always use auxiliary light on towed implement when tractor rear signals and other lights are obscured.

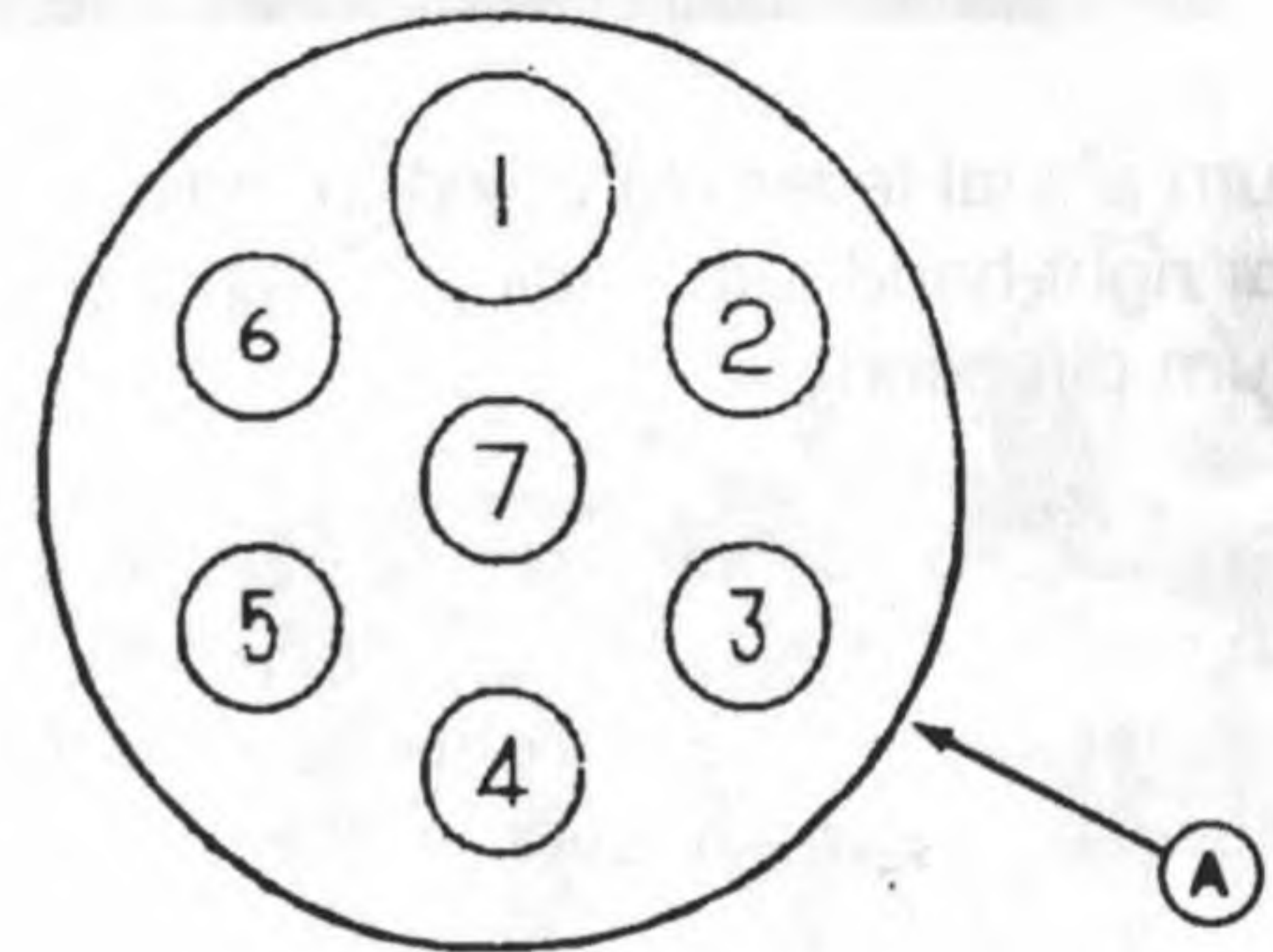
NOTE: Matching plug is available through your John Deere dealer.

Terminal	Function	Wire Color
1	Ground	Black
2	Flood Lamp	Purple
3	Left Turn	Dark Green
4	Accessory	Red
5	Right Turn	Dark Green
6	Tail Lamp	Gray
7	Accessory	Red

A—Seven-Terminal Outlet



LV1598 -UN-30MAY96



RW21249 -UN-17JUN92

LV,5400NL,A11 -19-31MAY96-1/1

Operator's Platform (Open Station)

Operating Foldable ROPS

CAUTION: Make certain all parts are installed correctly if roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, as in an overturn incident, or is in anyway altered by welding, bending, drilling or cutting. A damaged ROPS should be replaced, not reused. Any alteration to the ROPS must be approved by the manufacturer.

Always keep upper part of ROPS pinned in vertical position (as pictured) when operating tractor. If tractor is operated with ROPS folded (e.g. to enter a low building) drive with extreme caution and DO NOT use seat belt.

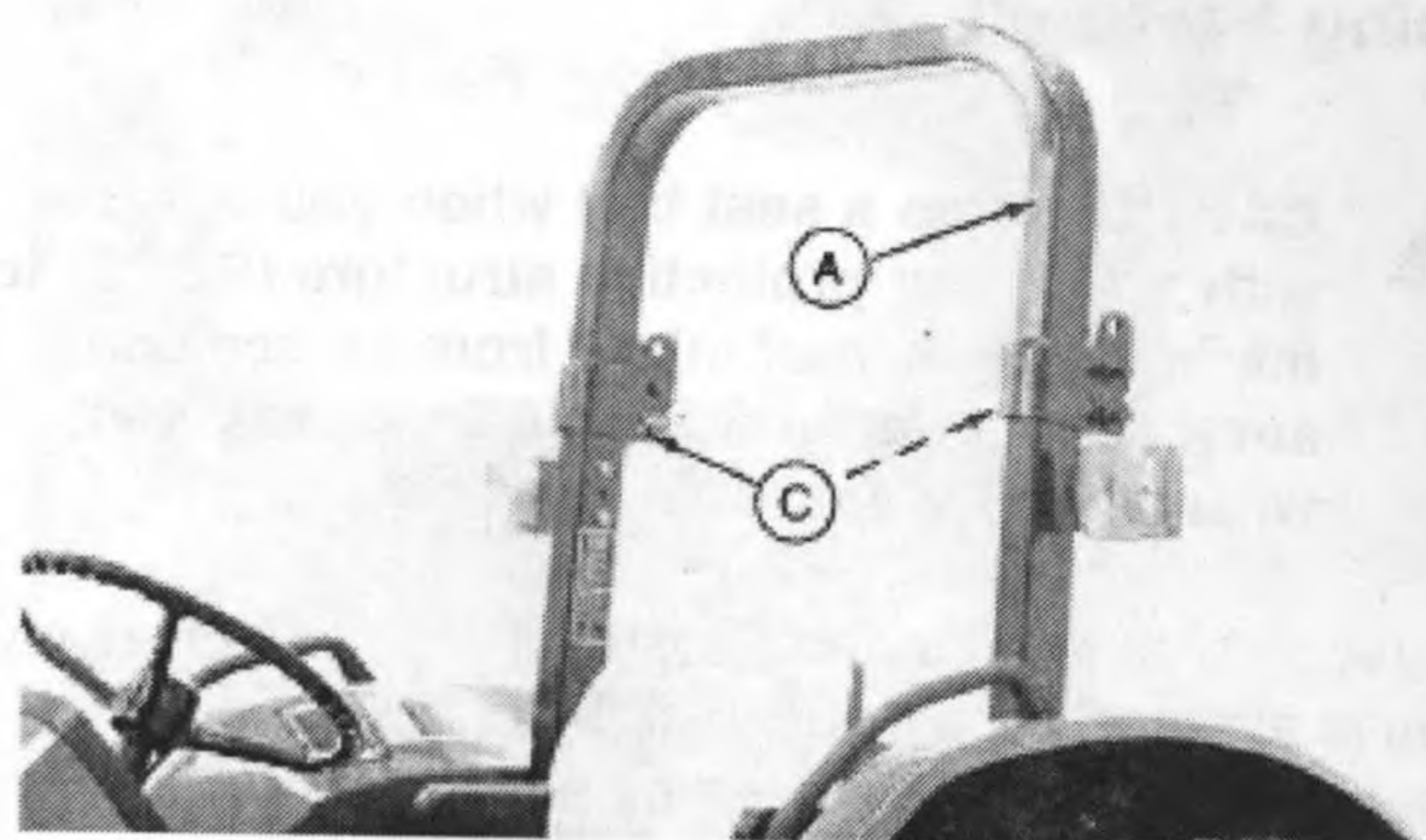
Fold the ROPS up again as soon as the tractor is operated under normal conditions.

To Lower ROPS Crossbar (A):

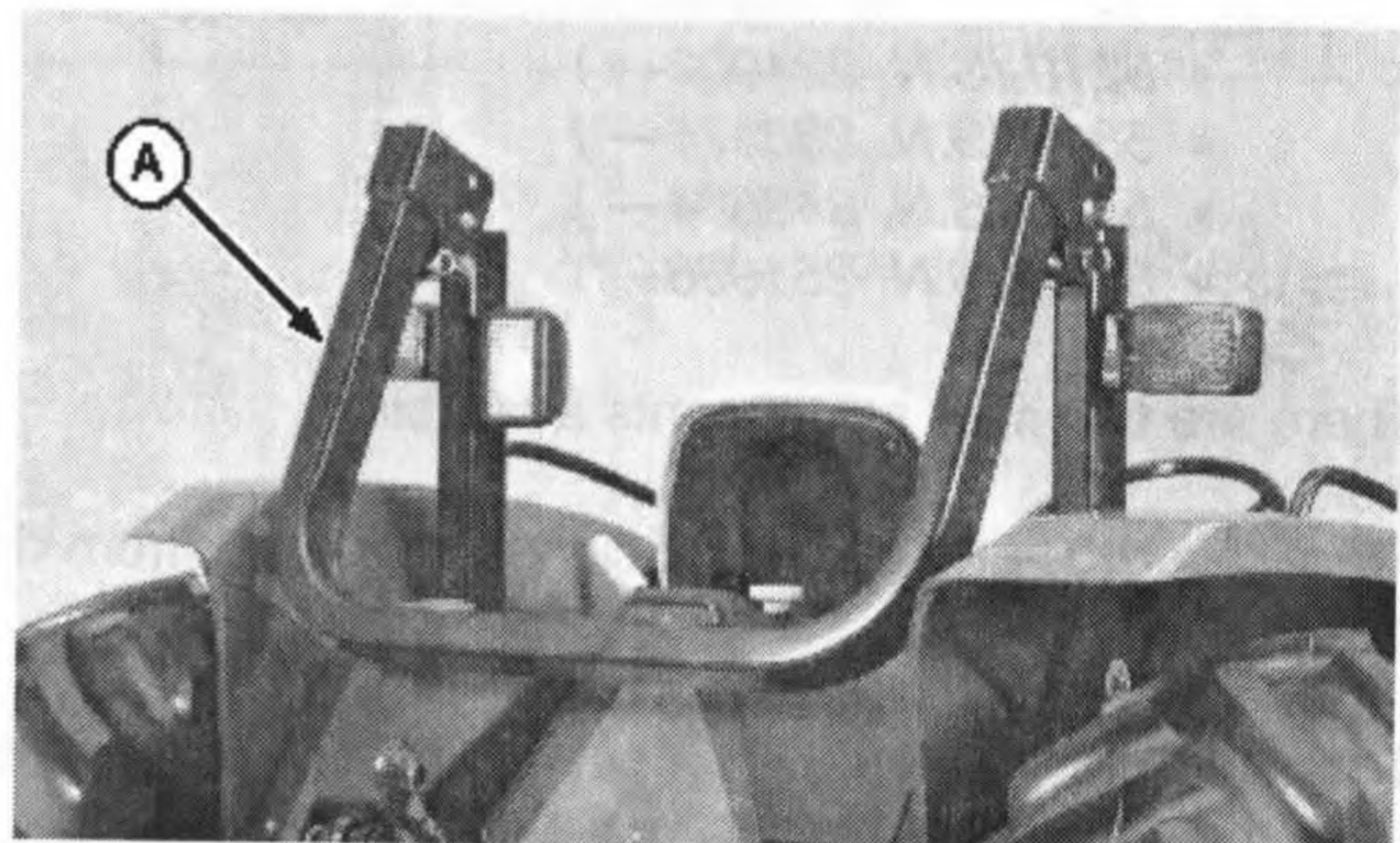
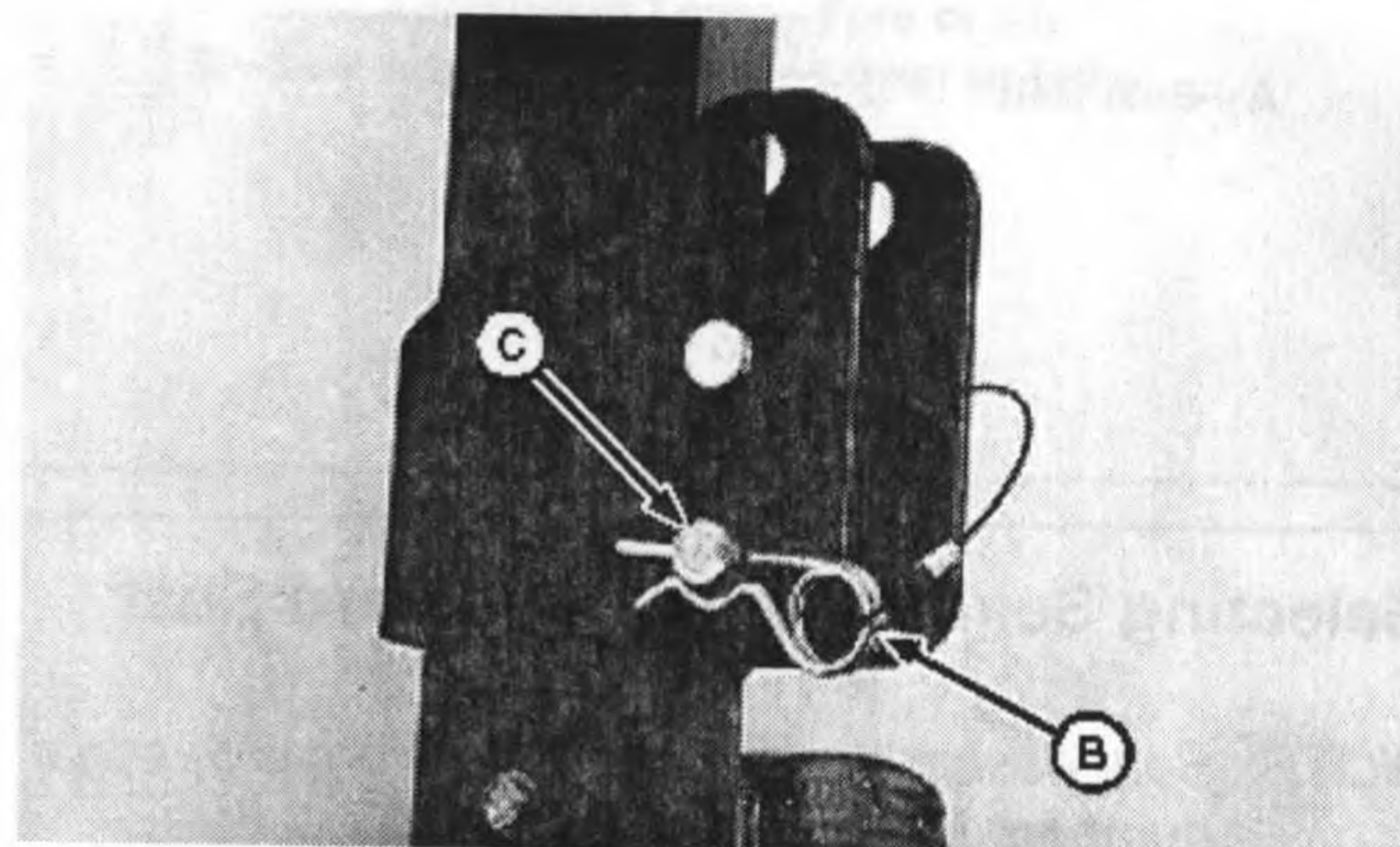
1. Remove quick-lock pins (B) and headed pins (C).
2. Lower crossbar (A) of ROPS onto stops.
3. Reinstall pins (C and B) into holes in ROPS to lock crossbar down.

To Put ROPS in Operating Position:

1. Lift crossbar (A) of ROPS to position shown.
2. Install pins (C) and quick-lock pins (B).



ROPS—Operating Position



ROPS—Folded

A—ROPS Crossbar
B—Quick-Lock Pins
C—Headed Pins

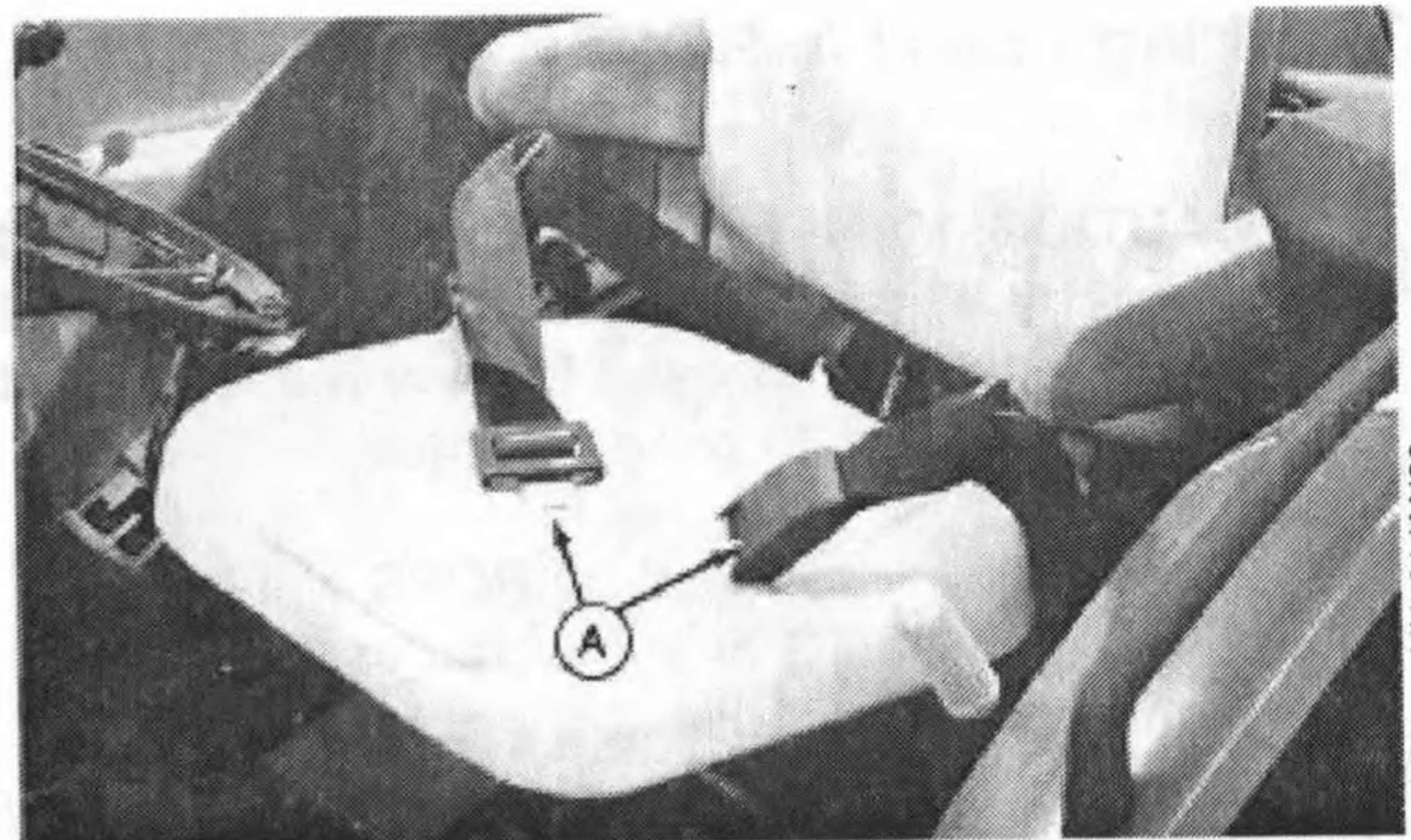
LV,50100P,A -19-04SEP97-1/1

Using Seat Belt



CAUTION: Use a seat belt when you operate with a roll-over protective structure (ROPS) to minimize chance of injury from an accident such as an overturn. **DO NOT** use seat belt when ROPS is folded down.

To properly retain operator, seat belt (A) must fit snugly across abdomen. To adjust belt, belt must be completely extended and length adjusted by pulling belt tail through buckle.



M46353 -JUN-31JAN92

A—Seat Belt

MX,CTIP,CA3 -19-10JAN96-1/1

Selecting Seat Position—Standard Seat

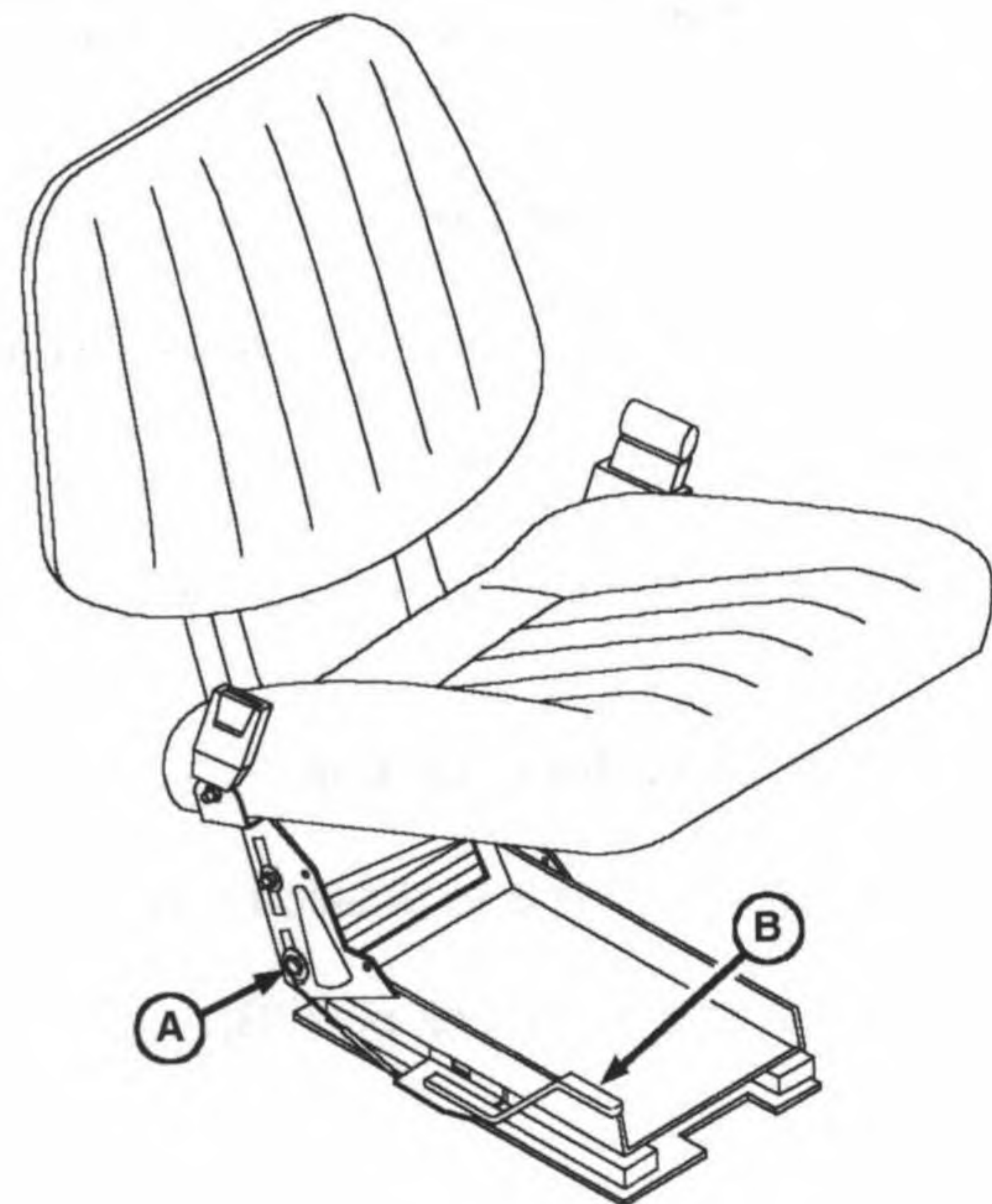
NOTE: Seat design is standard on tractors with serial numbers listed below:

- 5210 (S.N. 224002—)
- 5310 (S.N. 233376—)
- 5410 (S.N. 243604—)
- 5510 (S.N. 251936—)

There are two seat adjustments available:

Move lever (B) and slide seat closer to or away from dash panel and controls.

To raise or lower seat: Use a wrench to adjust cap screws (A) to desired seat height.



- A—Seat Adjustment Cap Screws—Lower or Raise
- B—Seat Adjustment Lever—Fore or Aft

LV4571 -JUN-16DEC99

AG,OUO1032,2901 -19-18FEB00-1/1

Selecting Seat Position—Optional Seat

NOTE: Seat design is optional on tractors with serial numbers listed below:

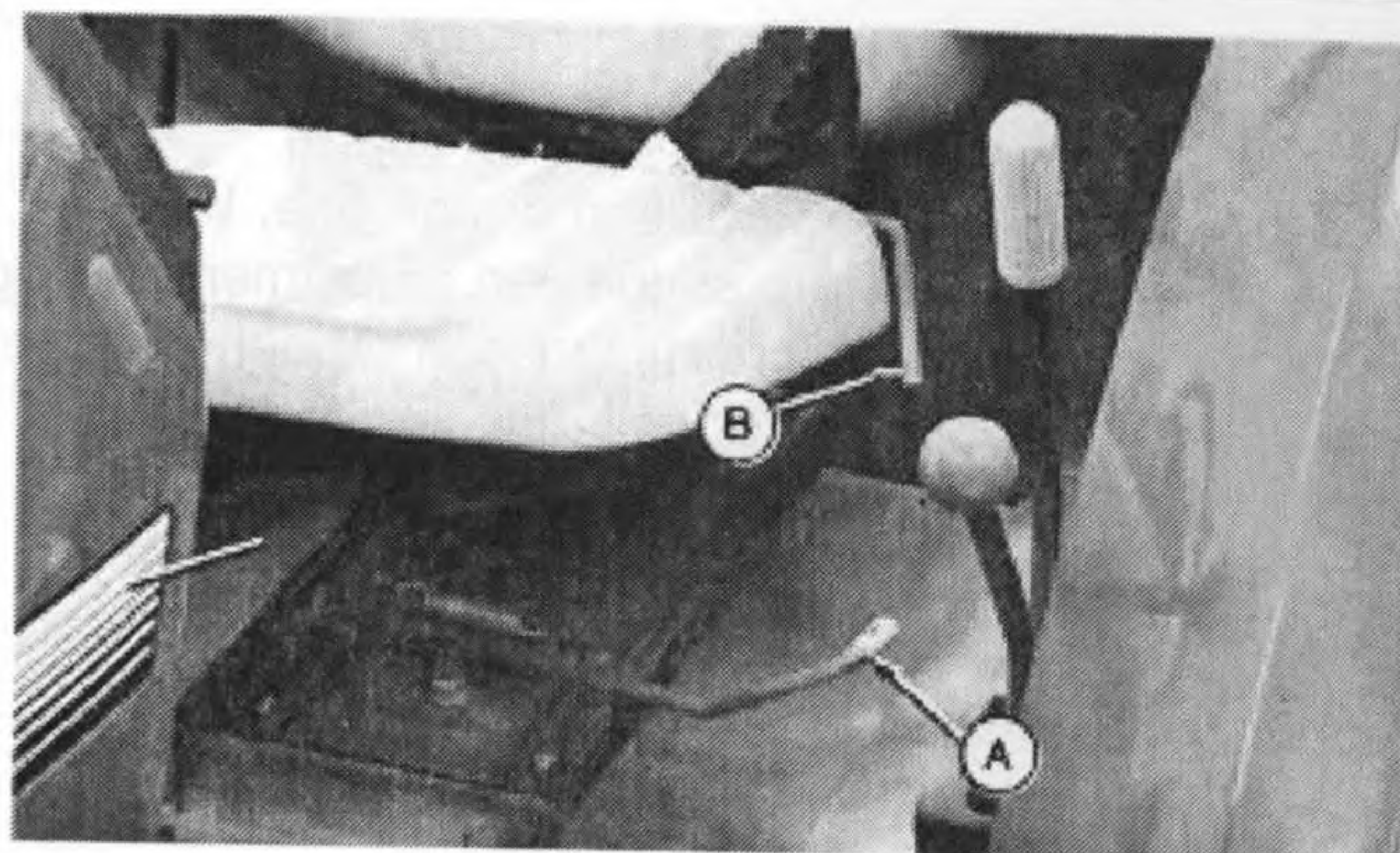
- 5210 (S.N. 224002—)
- 5310 (S.N. 233376—)
- 5410 (S.N. 243604—)
- 5510 (S.N. 251936—)

There are three seat adjustments available:

Move lever (A) and slide seat closer to or away from dash panel and controls.

To lower seat: Pull up on lever (B), to release ratchet, and sit on seat to lower seat to its lowest position.

To raise seat: Raise up off seat and lift up on bottom front of seat cushion until desired height setting is obtained.



A—Seat Adjustment Lever—Fore or Aft
B—Seat Adjustment Lever—Lower or Raise

M46354 -UN-20FEB92

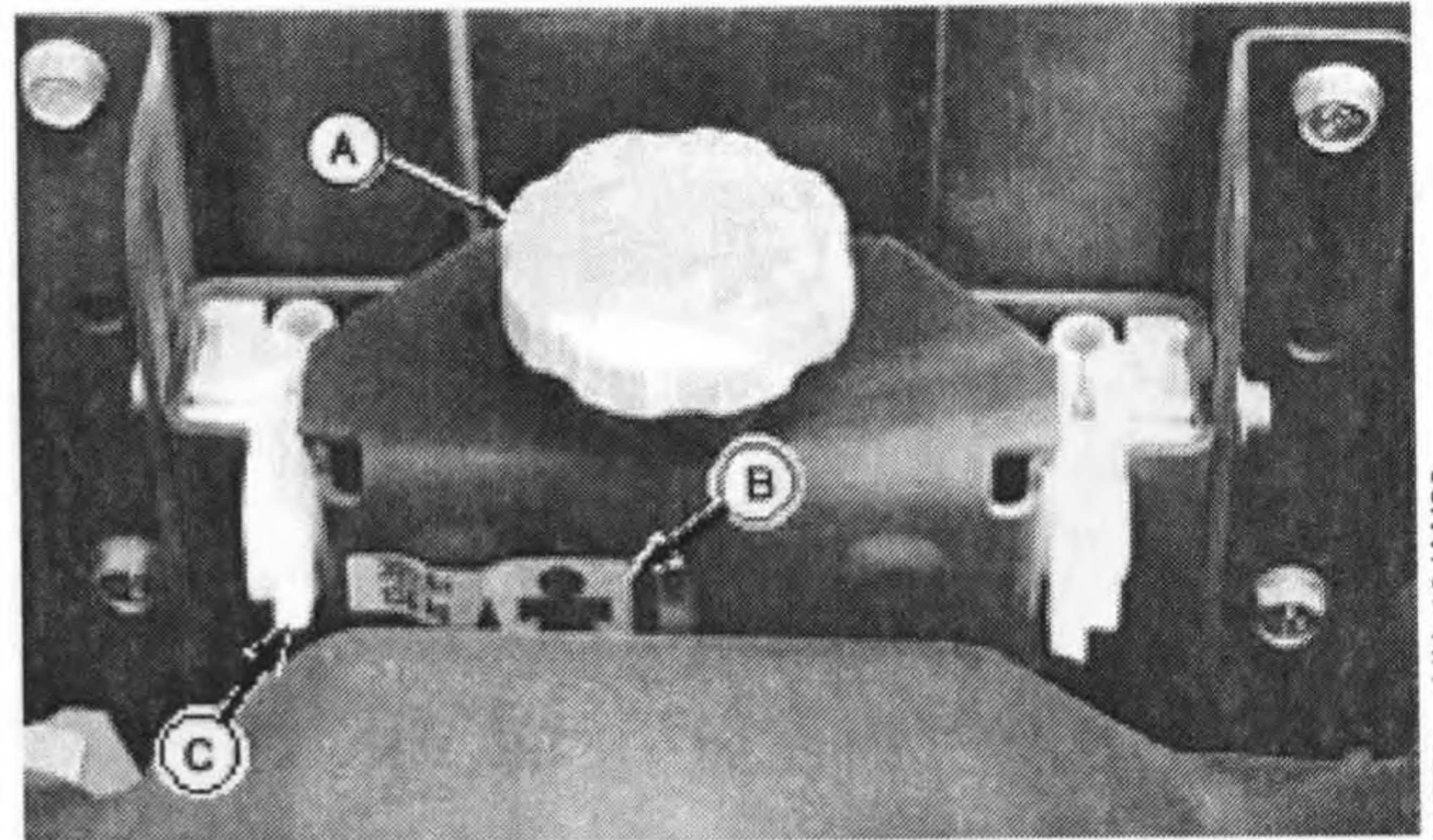
MX,CTIP,DA3 -19-18FEB00-1/1

Adjusting Ride Comfort

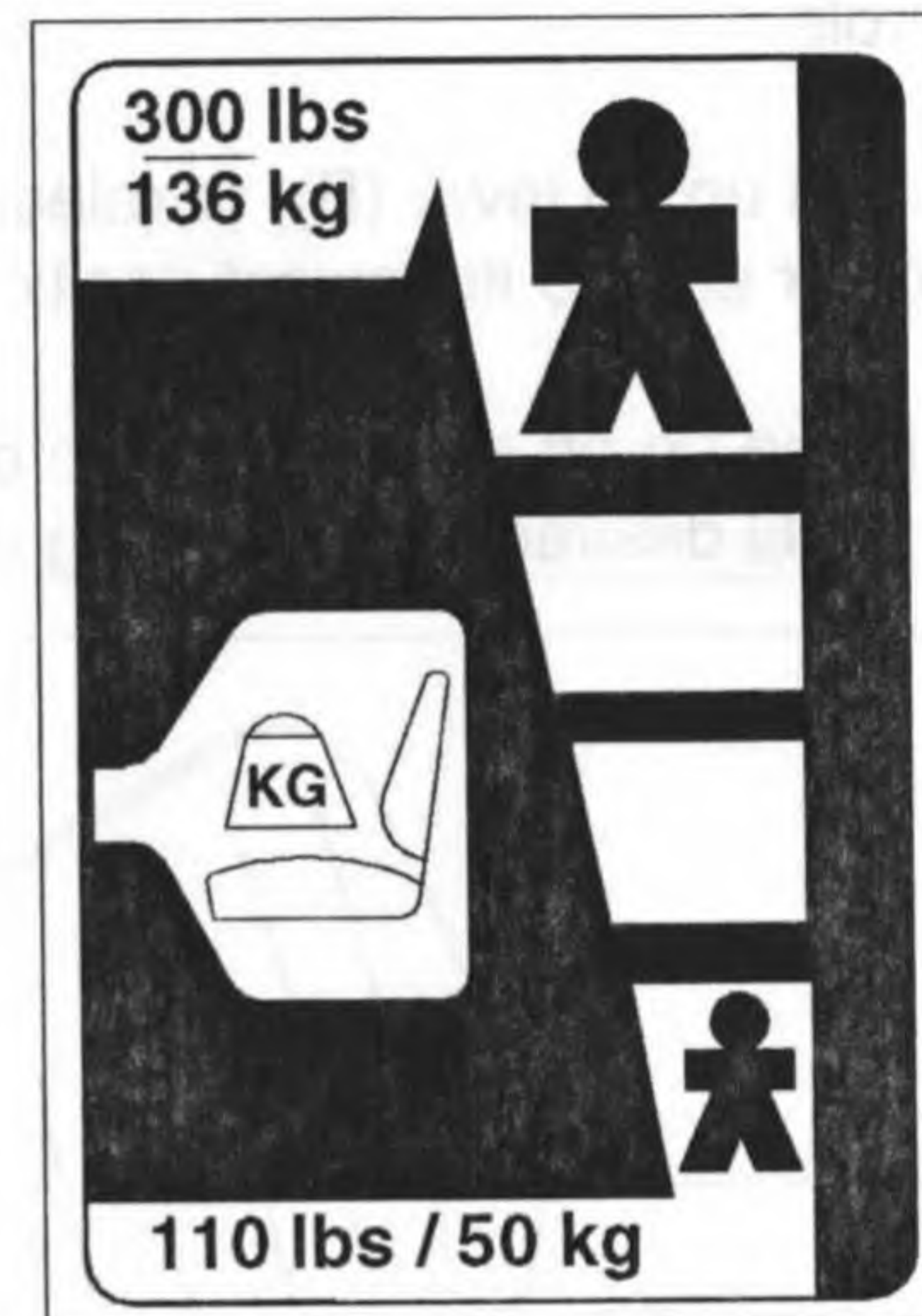
Turn adjusting knob (A) for a firm or soft ride. Weight markings on decal (B) are suggested adjustment settings where the seat suspension will function properly relative to operator's weight.

Align tab (C) with desired mark on decal.

- A—Adjustment Knob
- B—Decal
- C—Tab



LV871 -UN-19JAN96



Decal—Below Adjusting Knob

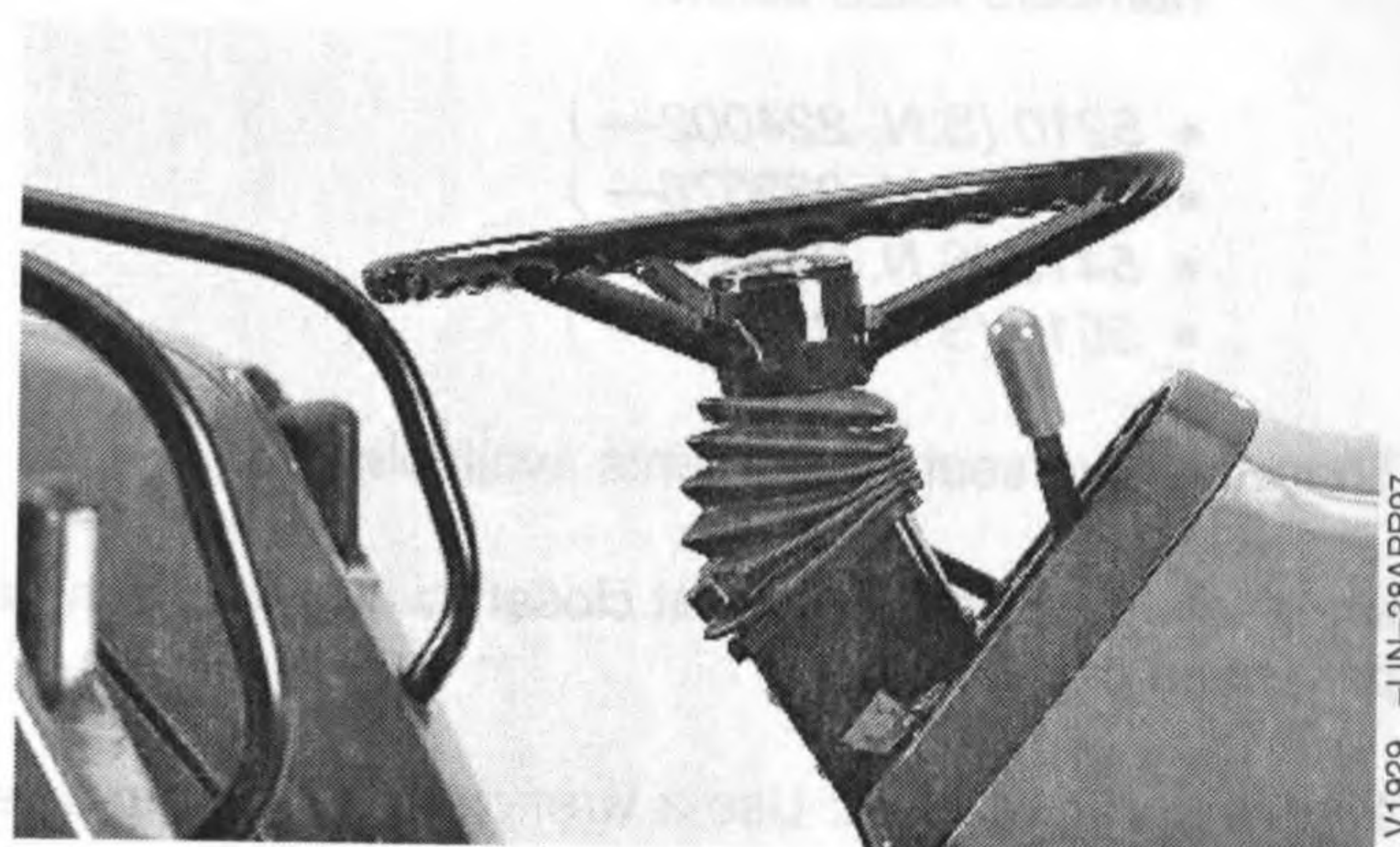
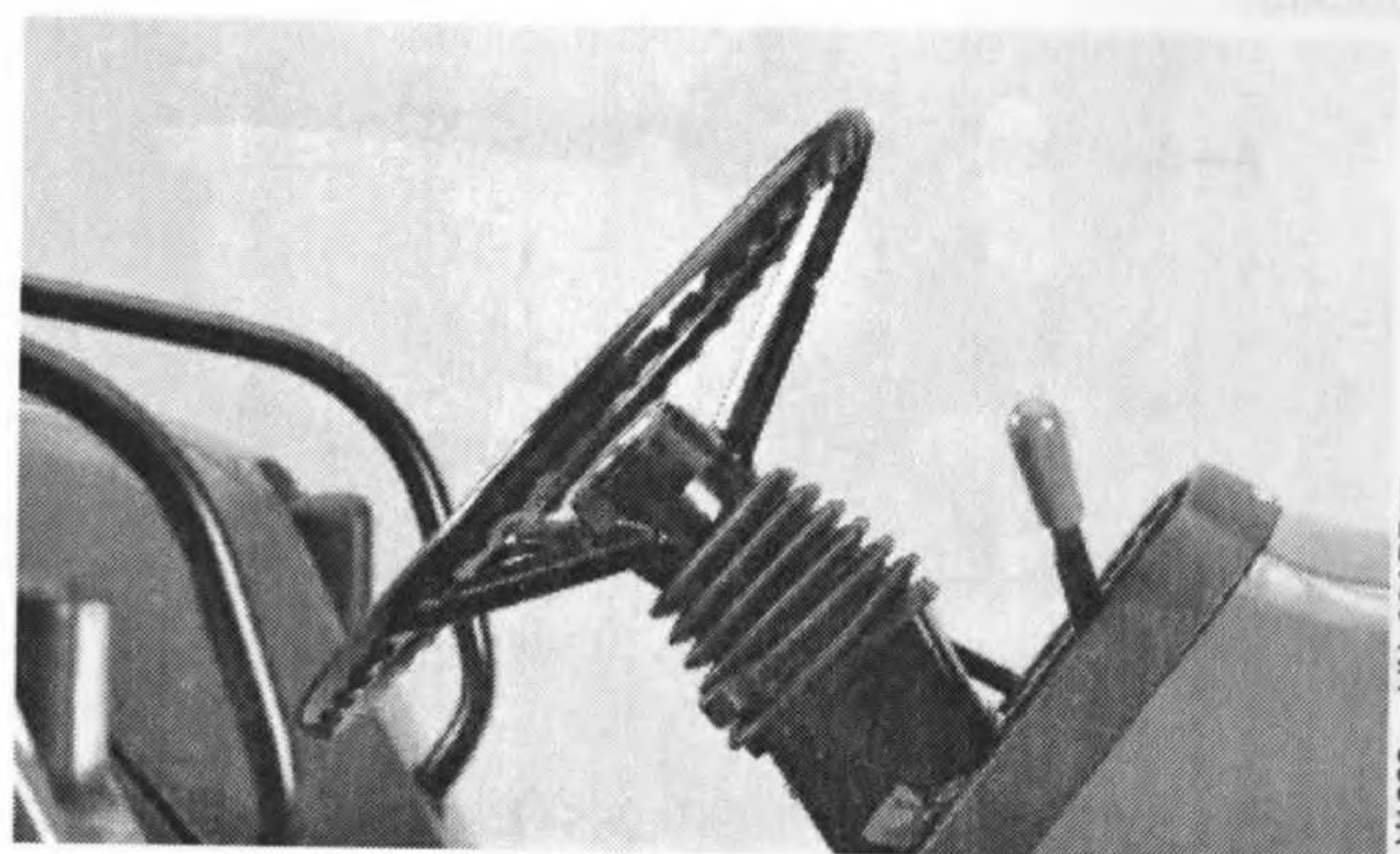
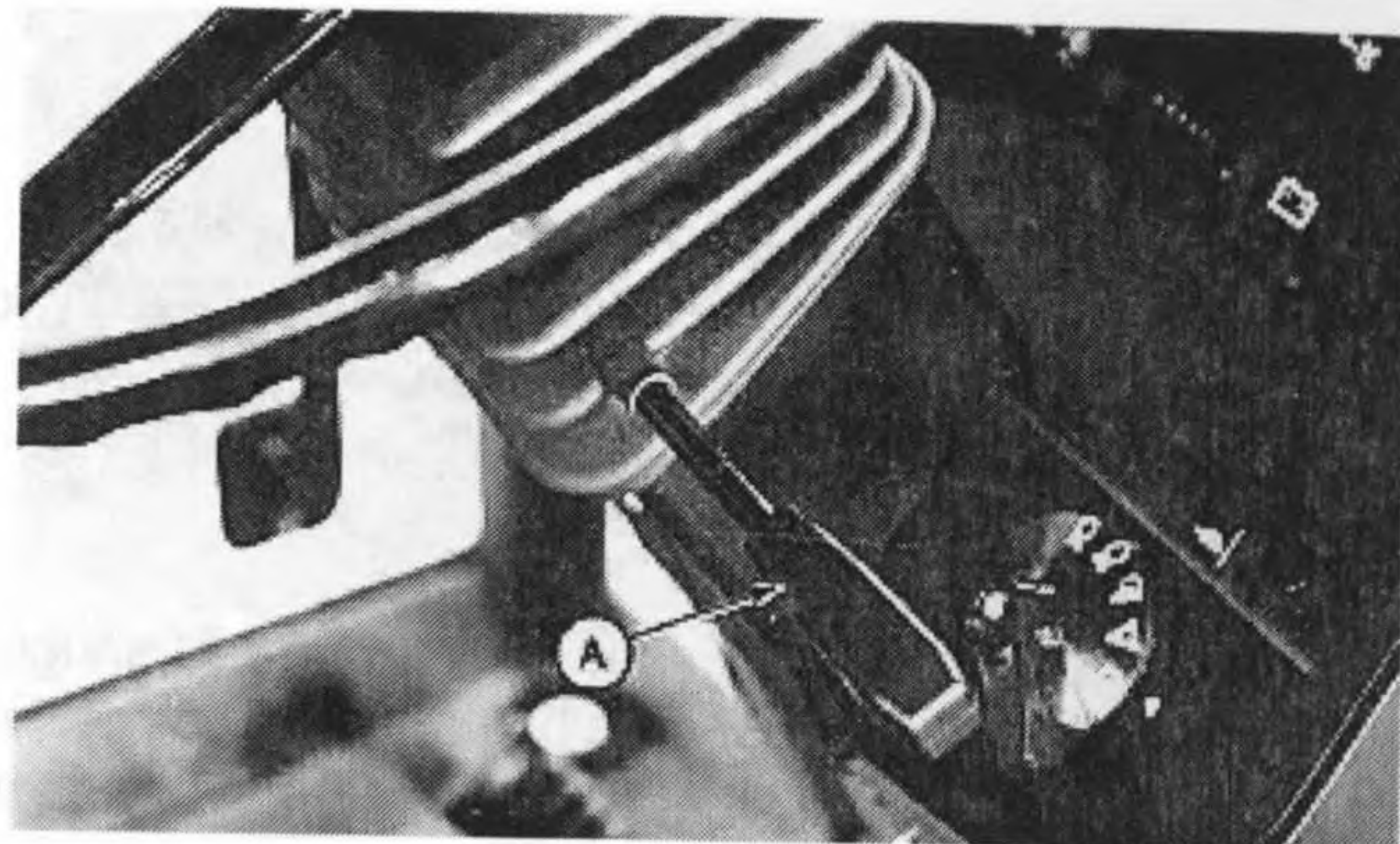
LV872 -UN-02JAN96

MX,CTIP,EA3 -19-20JAN96-1/1

Adjusting Steering Wheel Tilt—If Equipped

Push lever (A) down toward dash and move steering column to desired position. Release lever to lock.

A—Steering Wheel Tilt Lever



LV,5010OP,C -19-03JUN97-1/1

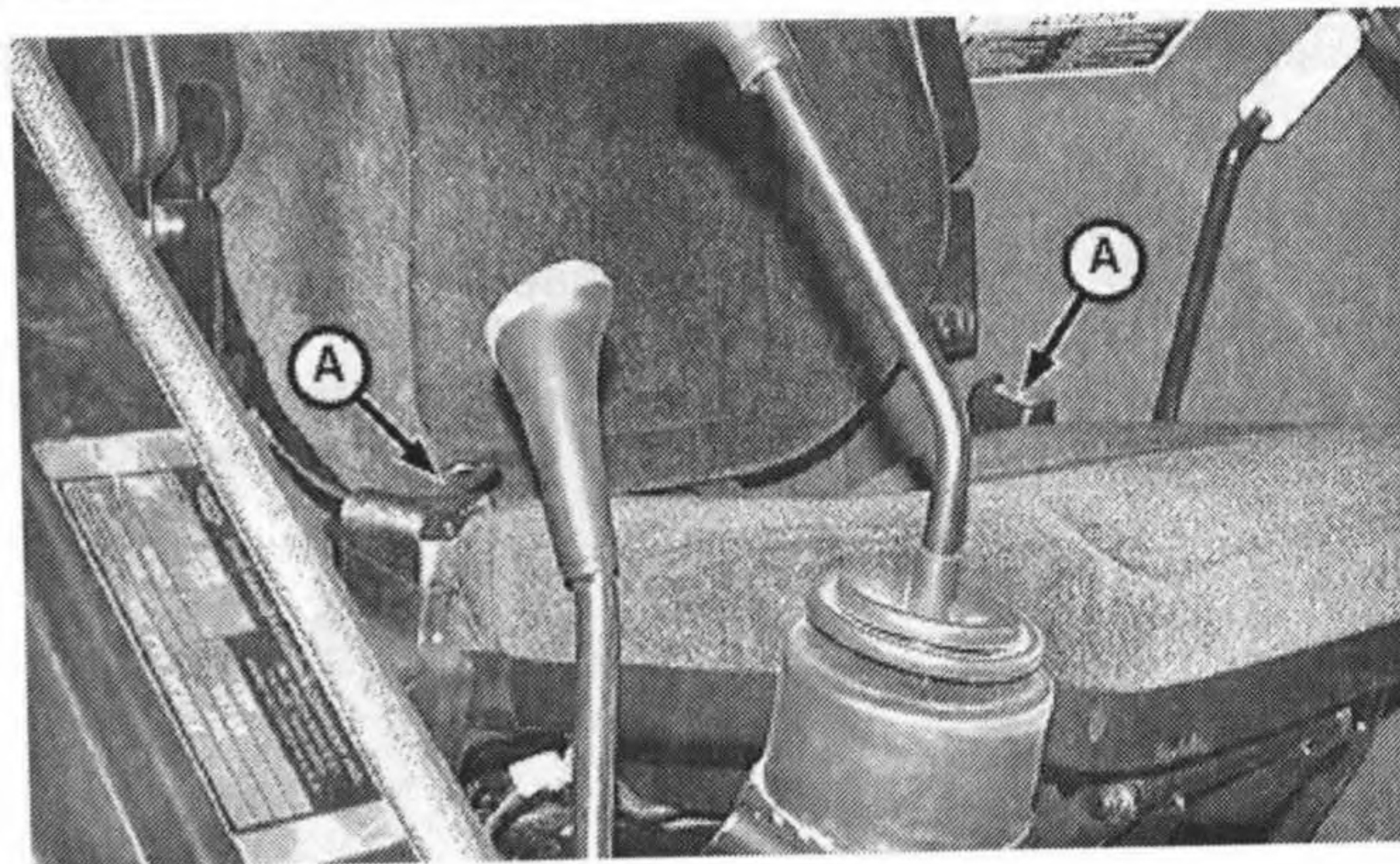
Operator's Station (Cab)

Using Seat Belt

CAUTION: Use a seat belt when you operate with a roll-over protective structure (ROPS) to minimize chance of injury from an accident such as an overturn. **DO NOT** use seat belt when ROPS is folded down.

To properly retain operator, seat belt (A) must fit snugly across abdomen. To adjust belt, belt must be completely extended and length adjusted by pulling belt tail through buckle.

A—Seat Belt



LV3023 -UN-19AUG99

MX,CTIP,CA3 -19-09AUG99-1/1

Selecting Seat Position—Standard Seat

NOTE: Seat design is standard on tractors with serial numbers listed below:

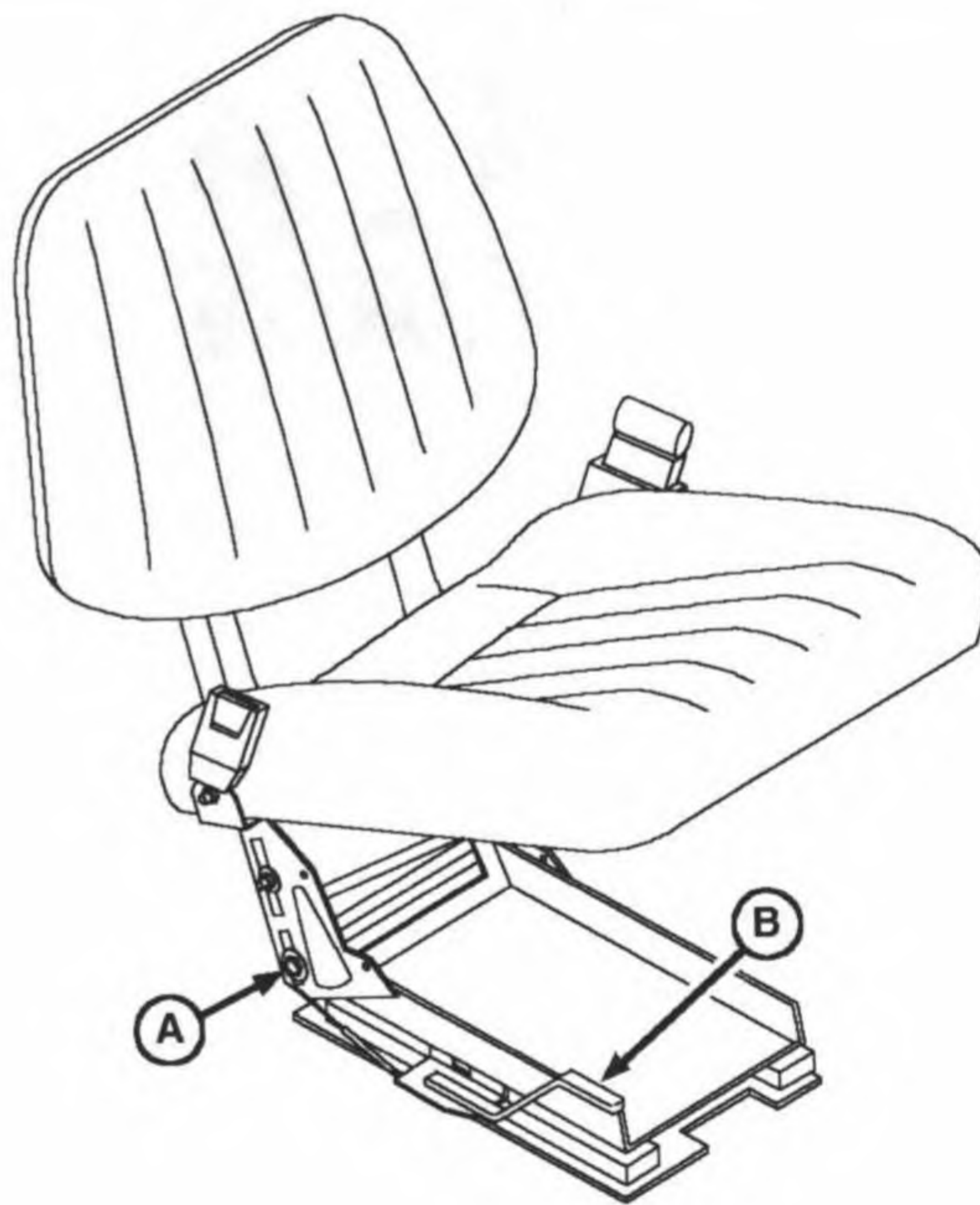
- 5210 (S.N. 224002—)
- 5310 (S.N. 233376—)
- 5410 (S.N. 243604—)
- 5510 (S.N. 251936—)

There are two seat adjustments available:

Move lever (B) and slide seat closer to or away from dash panel and controls.

To raise or lower seat: Use a wrench to adjust cap screws (A) to desired seat height.

A—Seat Adjustment Cap Screws—Lower or Raise
B—Seat Adjustment Lever—Fore or Aft



LV4571 -UN-16DEC99

AG,OUO1032,2901 -19-18FEB00-1/1

Selecting Seat Position—Optional Seat

NOTE: Seat design is optional on tractors with serial numbers listed below:

- 5210 (S.N. 224002—)
- 5310 (S.N. 233376—)
- 5410 (S.N. 243604—)
- 5510 (S.N. 251936—)

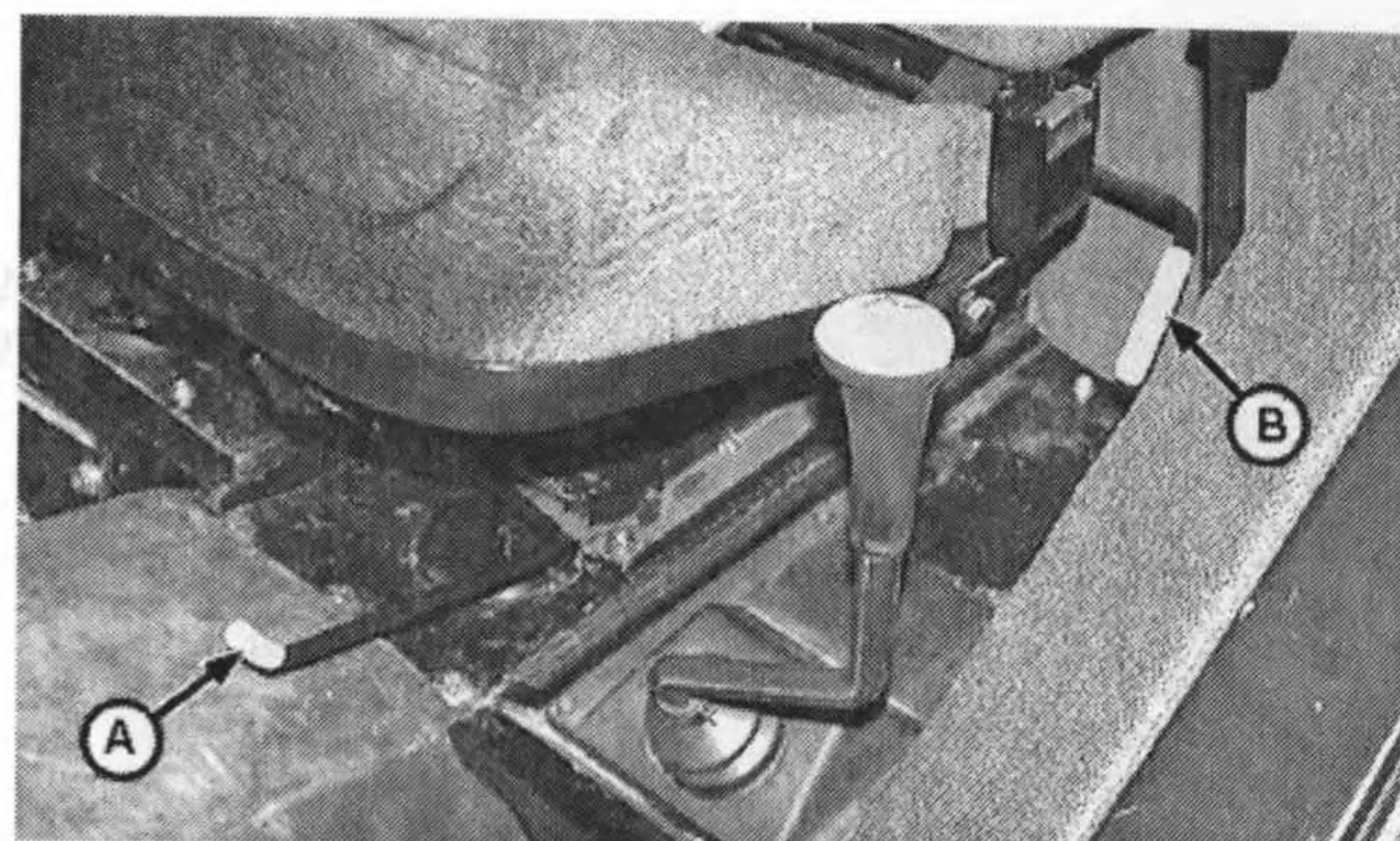
There are three seat adjustments available:

Move lever (A) and slide seat closer to or away from dash panel and controls.

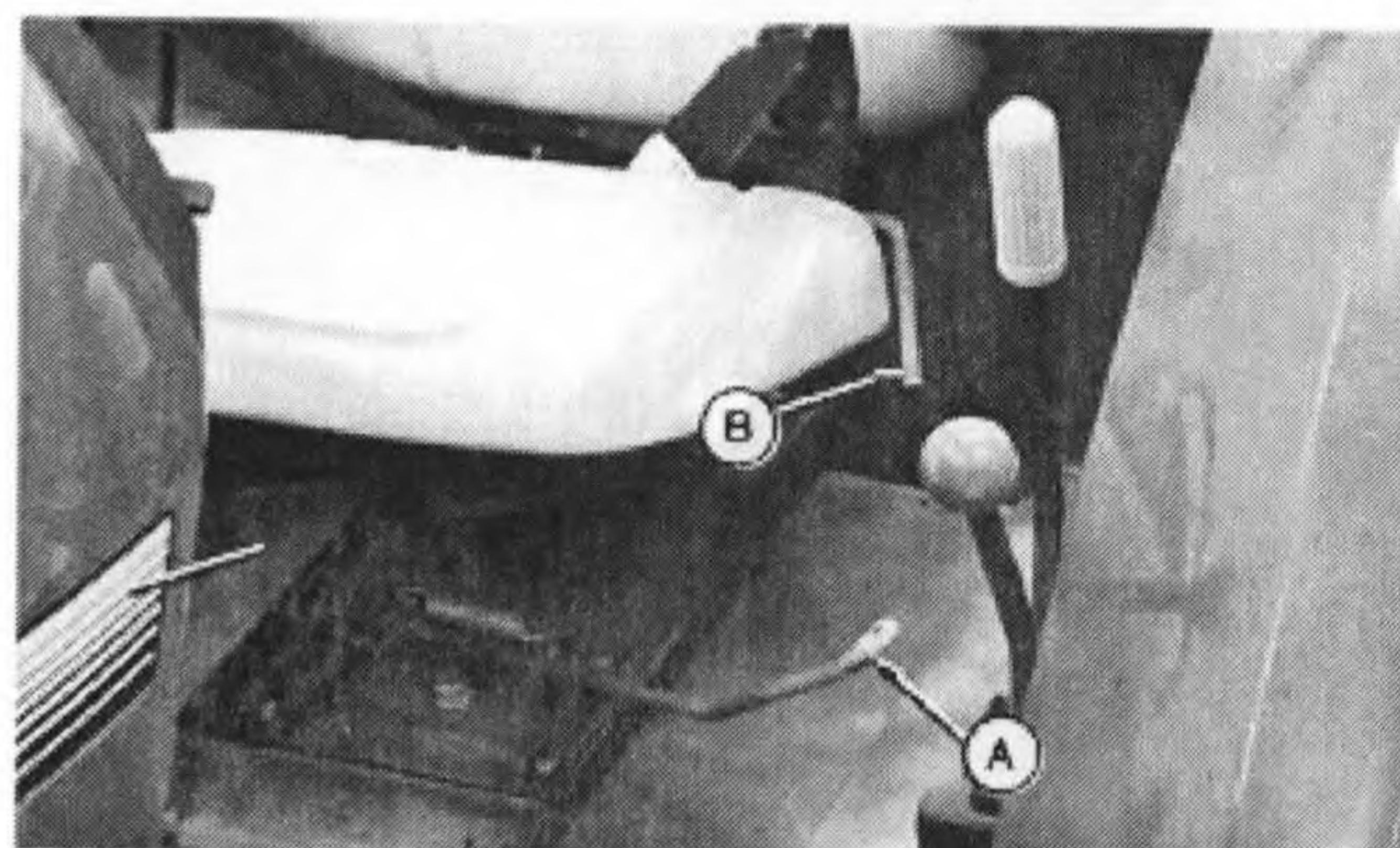
To lower seat: Pull up on lever (B), to release ratchet, and sit on seat to lower seat to its lowest position.

To raise seat: Raise up off seat and lift up on bottom front of seat cushion until desired height setting is obtained.

- A—Seat Adjustment Lever—Fore or Aft**
B—Seat Adjustment Lever—Lower or Raise



LV3024 -UN-19AUG99



M46354 -UN-20FEB92

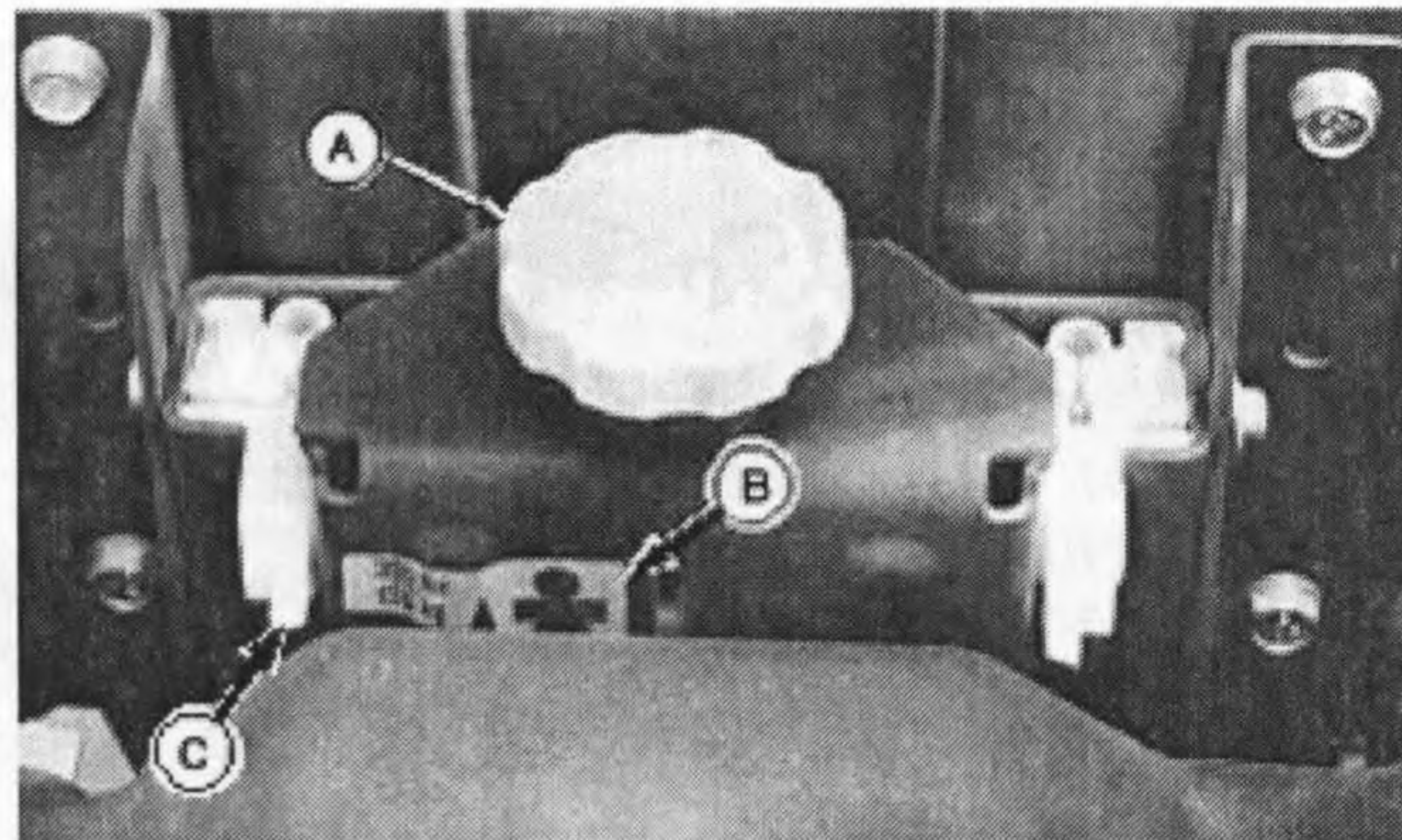
MX,CTIP,DA3 -19-18FEB00-1/1

Adjusting Ride Comfort

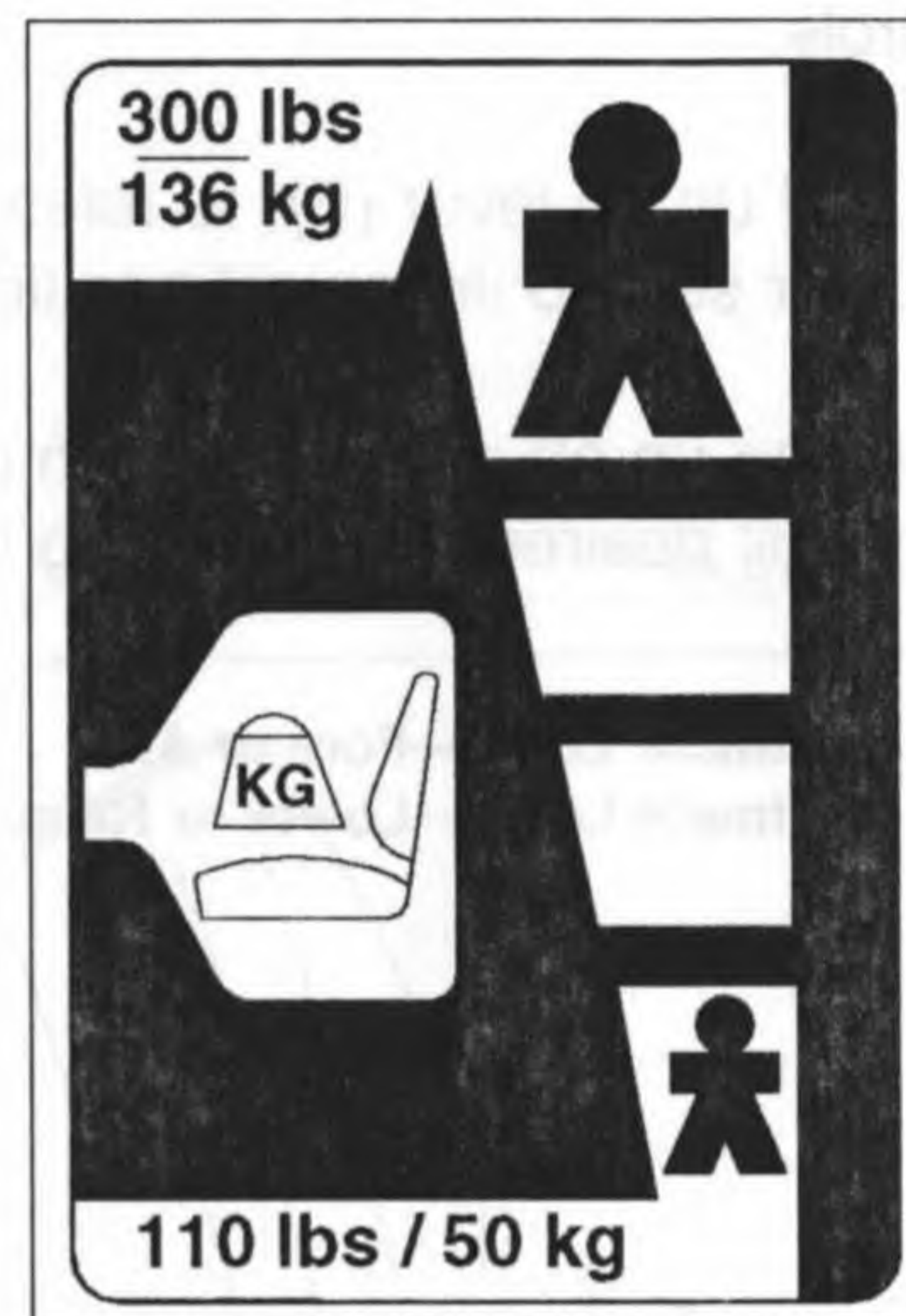
Turn adjusting knob (A) for a firm or soft ride. Weight markings on decal (B) are suggested adjustment settings where the seat suspension will function properly relative to operator's weight.

Align tab (C) with desired mark on decal.

- A—Adjustment Knob
- B—Decal
- C—Tab



LV871 -UN-19JAN96



Decal—Below Adjusting Knob

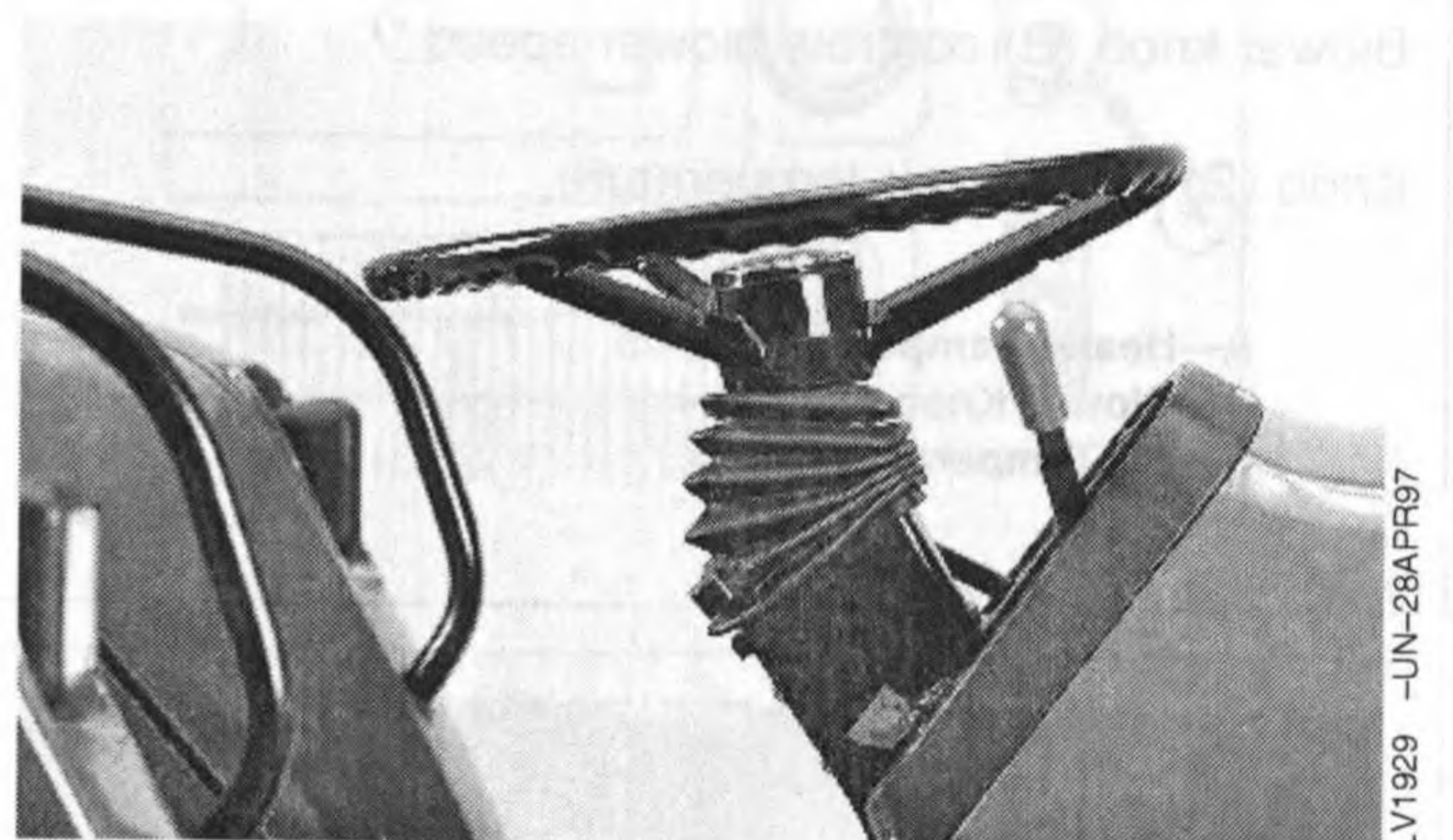
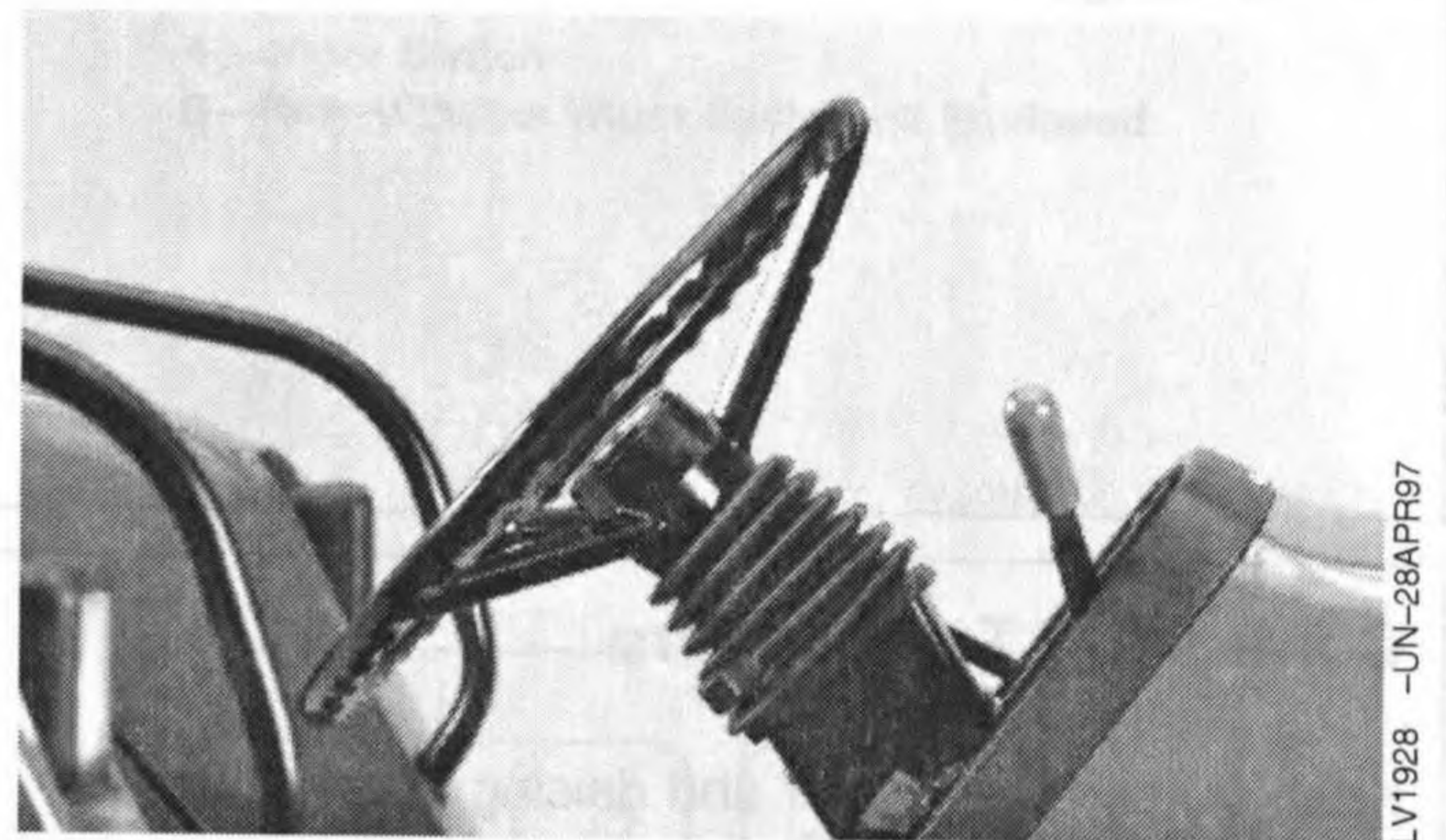
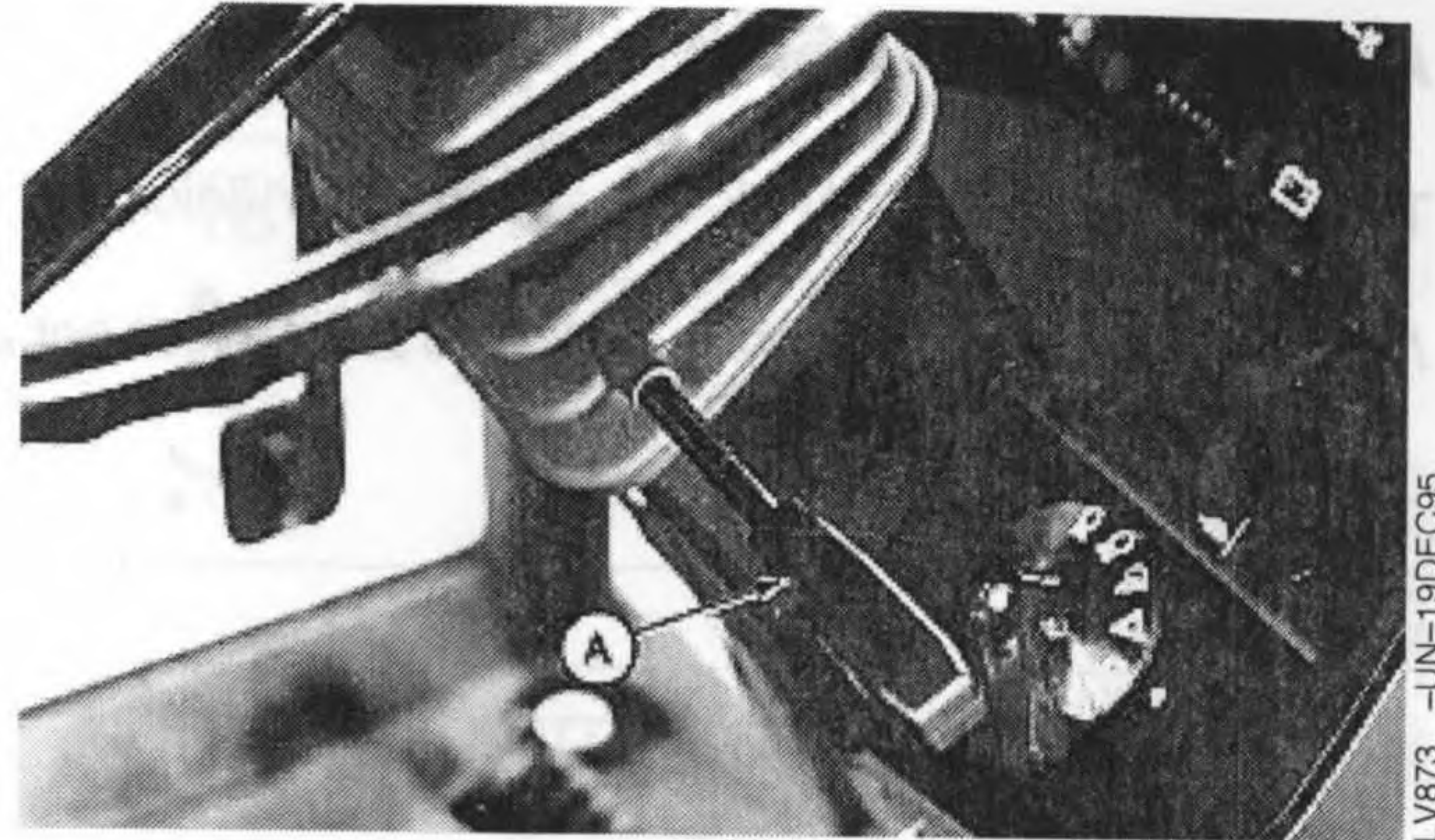
LV872 -UN-02JAN96

MX,CTIP,EA3 -19-20JAN96-1/1

Adjusting Steering Wheel Tilt

Push lever (A) down toward dash and move steering column to desired position. Release lever to lock.

A—Steering Wheel Tilt Lever



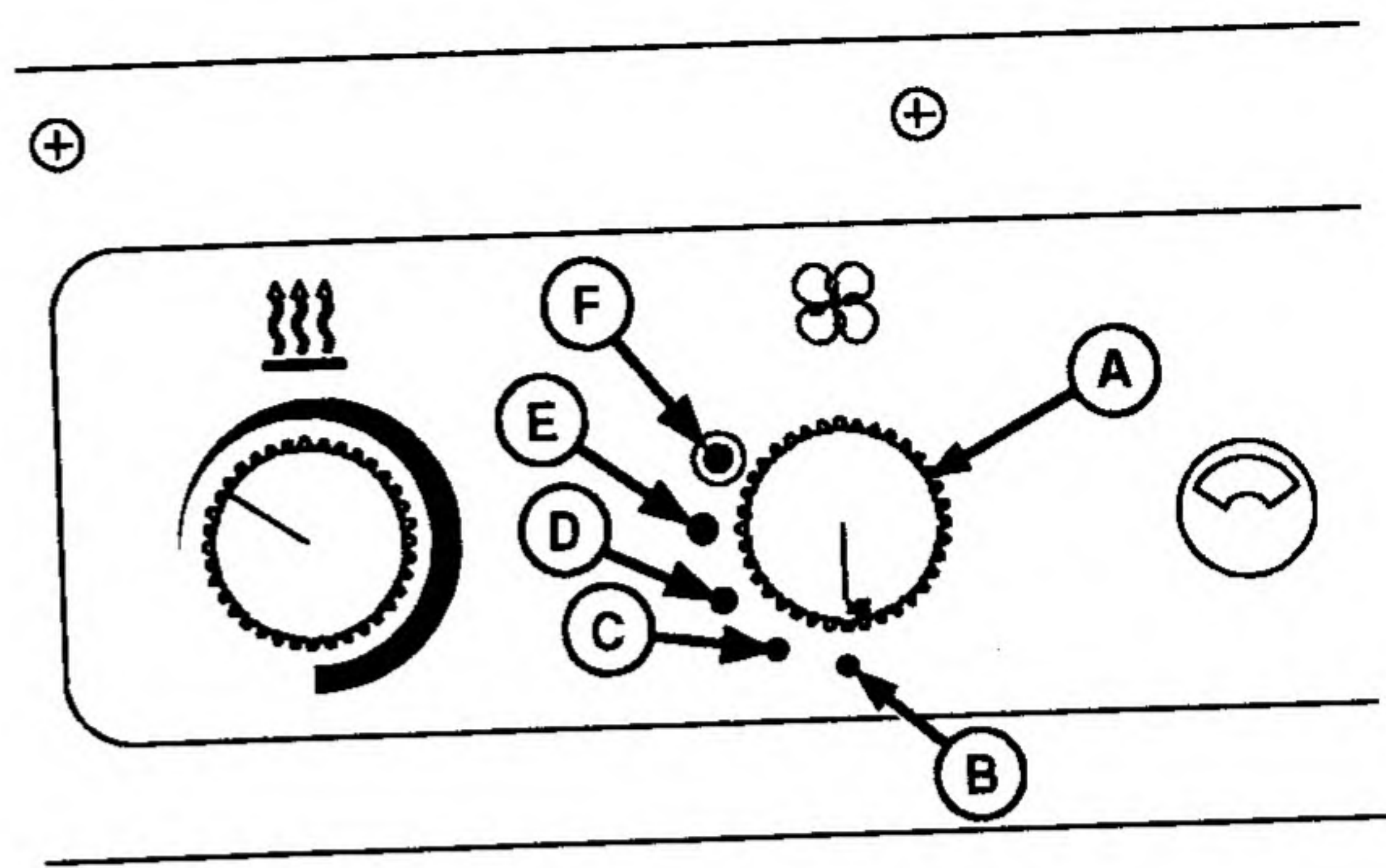
LV,50100S,C -19-03JUN97-1/1

Adjusting Blower Speed

Turn knob (A) to desired blower speed or for deicing.

NOTE: The purge position is designed to exhaust hot air rapidly from the cab.

- A—Blower Knob
- B—Off
- C—Low
- D—Medium
- E—High
- F—Purge



LV1973 -UN-04SEP97

LV,50100S,D -19-04SEP97-1/1

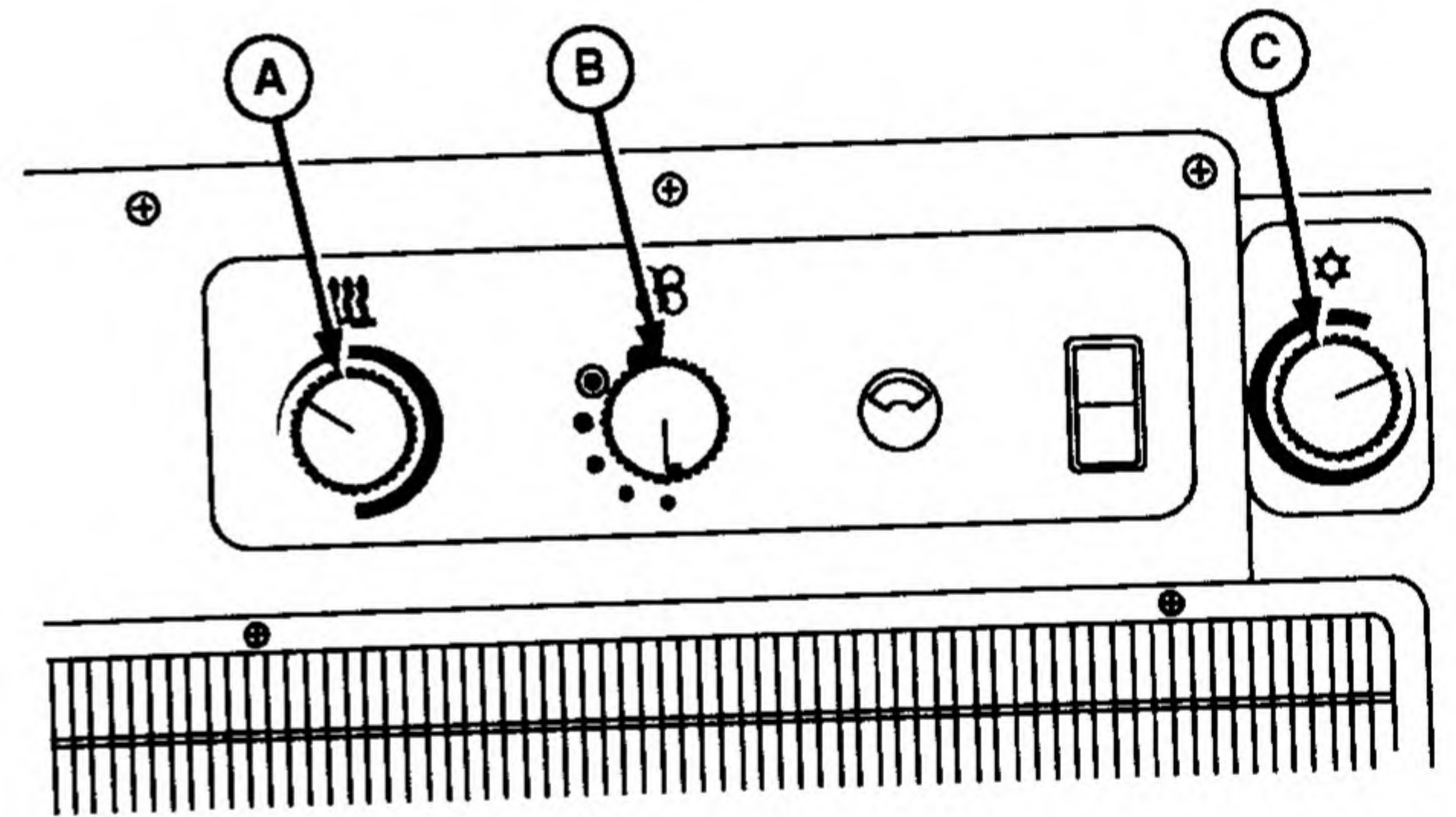
Controlling Temperature

Knob (A) controls heater and deicing temperature.

Blower knob (B) controls blower speed.

Knob (C) controls air temperature.

- A—Heater Temperature Knob
- B—Blower Knob
- C—Air Temperature Knob



LV1980 -UN-04SEP97

LV,50100S,E -19-04SEP97-1/1

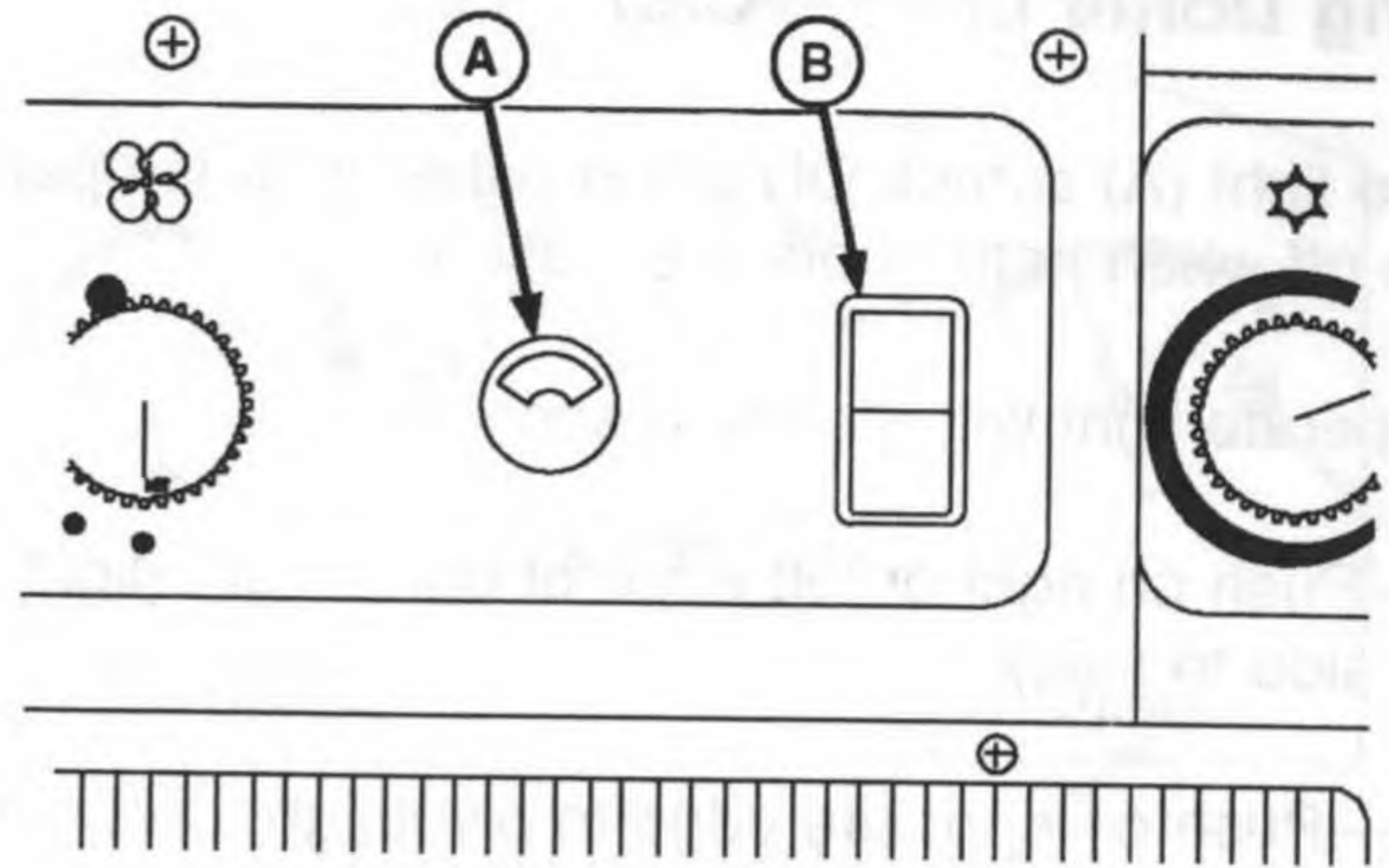
Operating Wiper(s)

Rotate switch (A) to activate three windshield wiper positions:

- Off
- Slow
- Fast

Push on switch (A) to operate optional windshield washer.

If equipped with optional rear window wiper, push top part of rocker switch (B) to turn wiper ON and bottom part to turn OFF.



A—Wiper Switch
B—Rear Window Wiper Switch—If Equipped

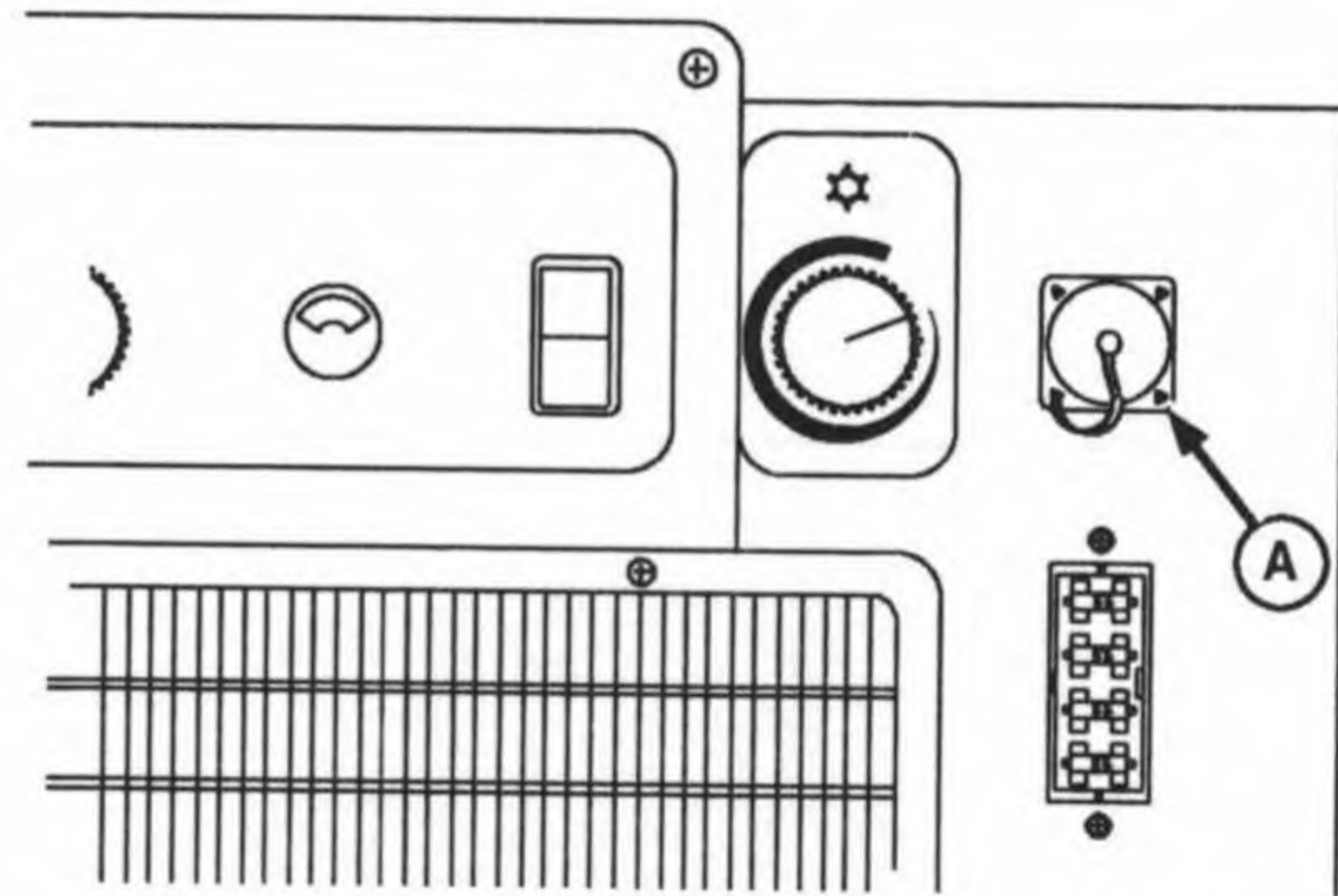
LV,50100S,F -19-04SEP97-1/1

Accessory Electrical Outlet

Accessory 12-volt electrical outlet (A) is used when connecting auxiliary equipment.

NOTE: Outlet is protected by two fuses. One 30-amp and one 20-amp.

A—12-Volt Electrical Outlet



LV,50100S,G -19-04SEP97-1/1

Radio

Dealer installed radios are available for 5010 Series tractors with a cab. See your John Deere dealer for information and installation of an aftermarket radio.



LV,50100S,I -19-04SEP97-1/1

Using Dome Light—Cab

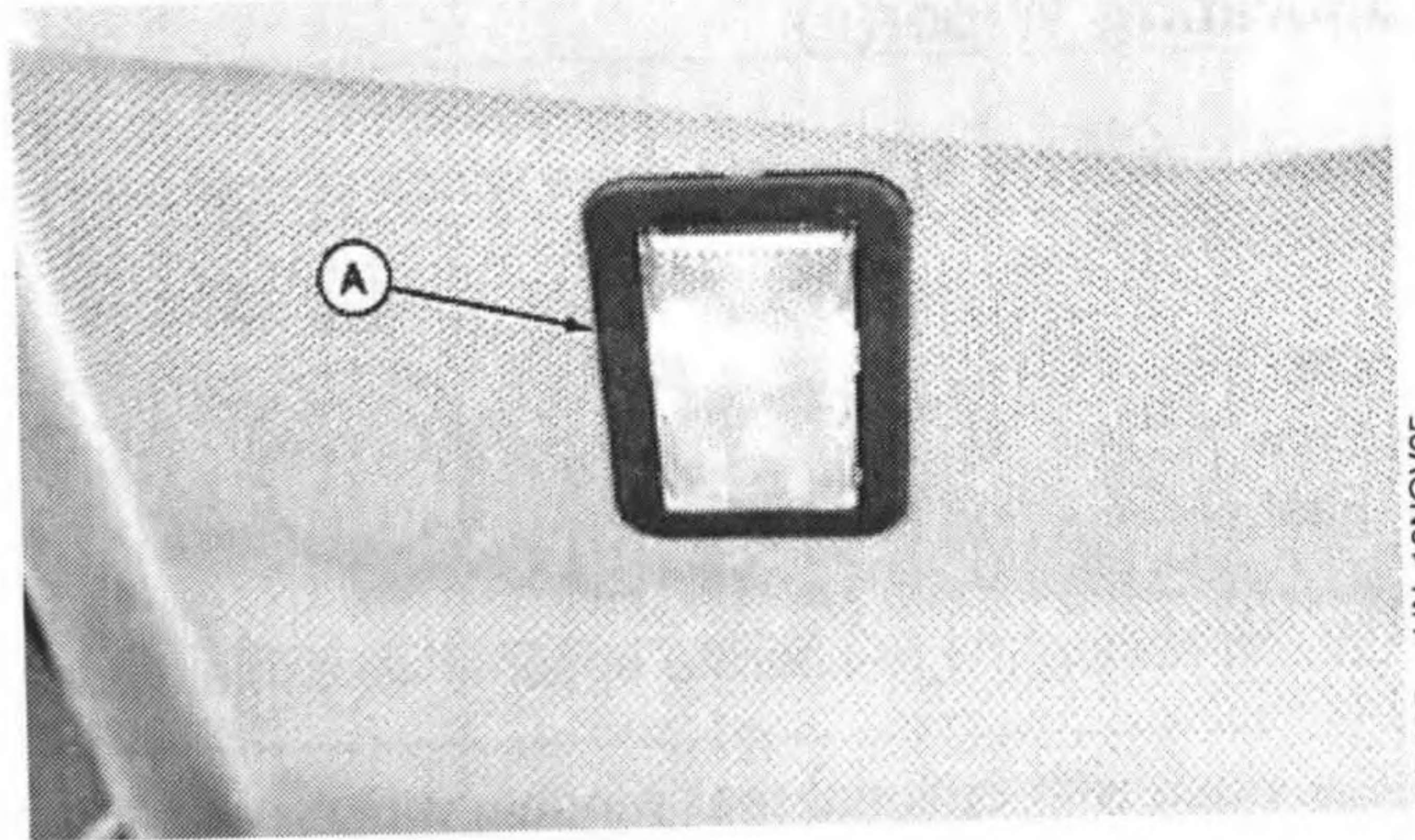
Dome light (A) comes ON when either door is opened and turns off when both doors are closed.

To operate light with doors closed:

ON—Push on right or left edge of dome light (light pivots from side to side).

OFF—Push on opposite edge to pivot light until flush with headliner.

IMPORTANT: Before exiting cab, make sure dome light is in OFF position (flush with headliner). Failure to do so will cause battery to lose its charge.



A—Dome Light

LV1417 -UN-10NOV95

LV,5010OS,H -19-28MAY99-1/1

Break-In Period

Observe Engine Operation Closely

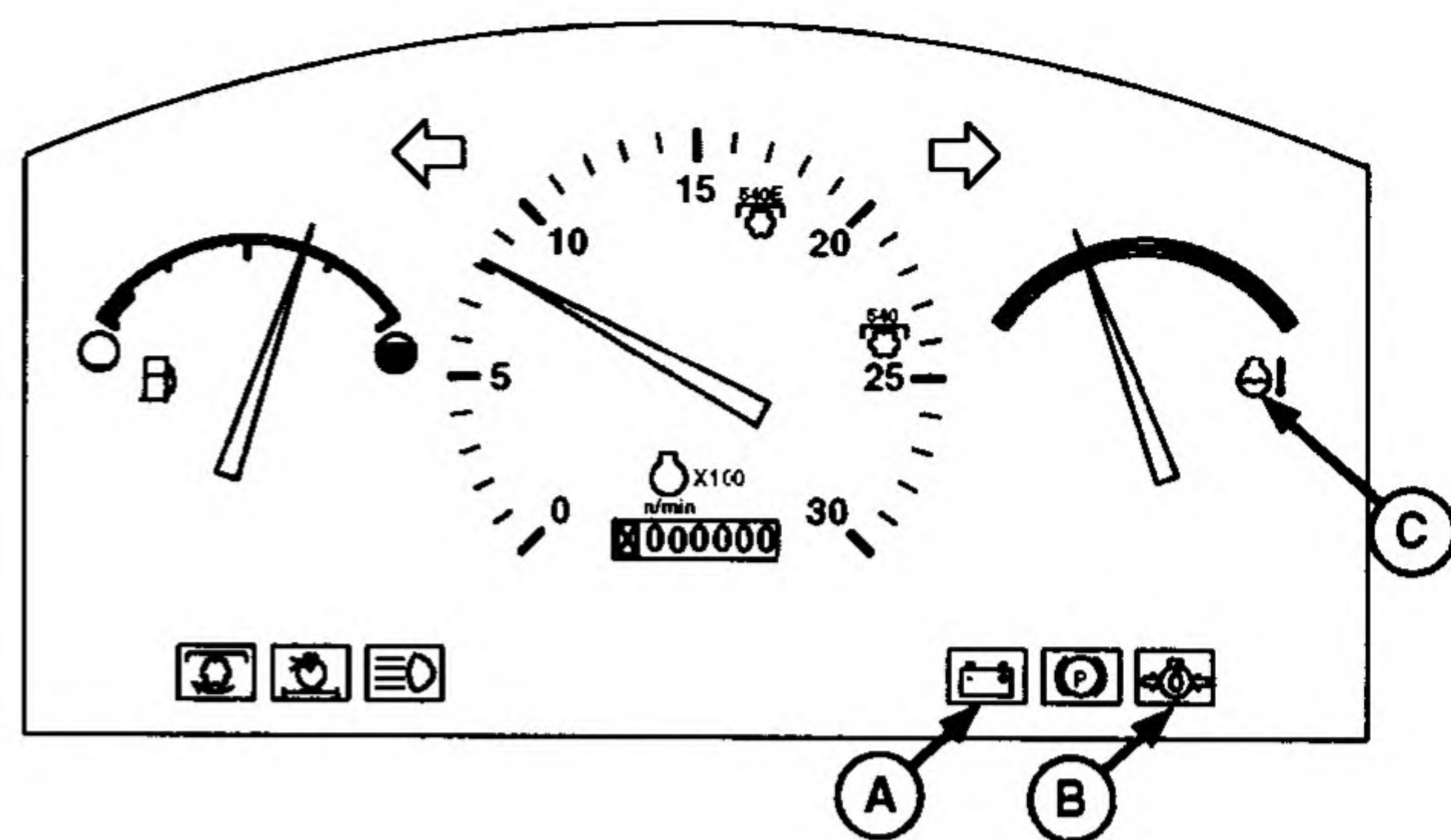
IMPORTANT: The engine is ready for normal operation. Be extra cautious during the first 100 hours, until you become thoroughly familiar with the sound and feel of your new tractor. Stay extra attentive and alert.

Warm up tractor carefully. Check charging (A) and oil pressure (B) warning indicator lights and coolant temperature gauge (C).

Avoid unnecessary engine idling.

Check engine oil, coolant, transmission/hydraulic, and mechanical front wheel drive (if equipped) fluid levels frequently. Watch for fluid leaks.

NOTE: If engine oil must be added, use seasonal viscosity grade oil. Use only lubricants meeting specifications given in the Fuels, Lubricants, and Coolant section.



- A—Charging Indicator
- B—Oil Pressure Indicator
- C—Coolant Temperature Indicator

LV1713 -JUN-29MAY97

LV,5010BI,A -19-10SEP97-1/1

Break-In Service

IMPORTANT: Keep wheel hardware tight to avoid tractor damage. Check wheel hardware torque before operating, twice during first ten hours of operation, after fifty hours of operation, and periodically thereafter.

During the First 10 Hours of Operation:

Perform daily or 10 hours service. (See Service Intervals in Lubrication and Maintenance section)

Tighten wheel hardware. (See Wheels, Tires, and Treads section)

After the First 50 Hours of Operation:

Tighten wheel hardware. (See Wheels, Tires, and Treads section)

Check alternator/fan belt tension and tighten air intake and cooling system hose clamps

Check A/C compressor belt tension (cab)

Perform 50 Hours Service

After the First 100 Hours of Operation:

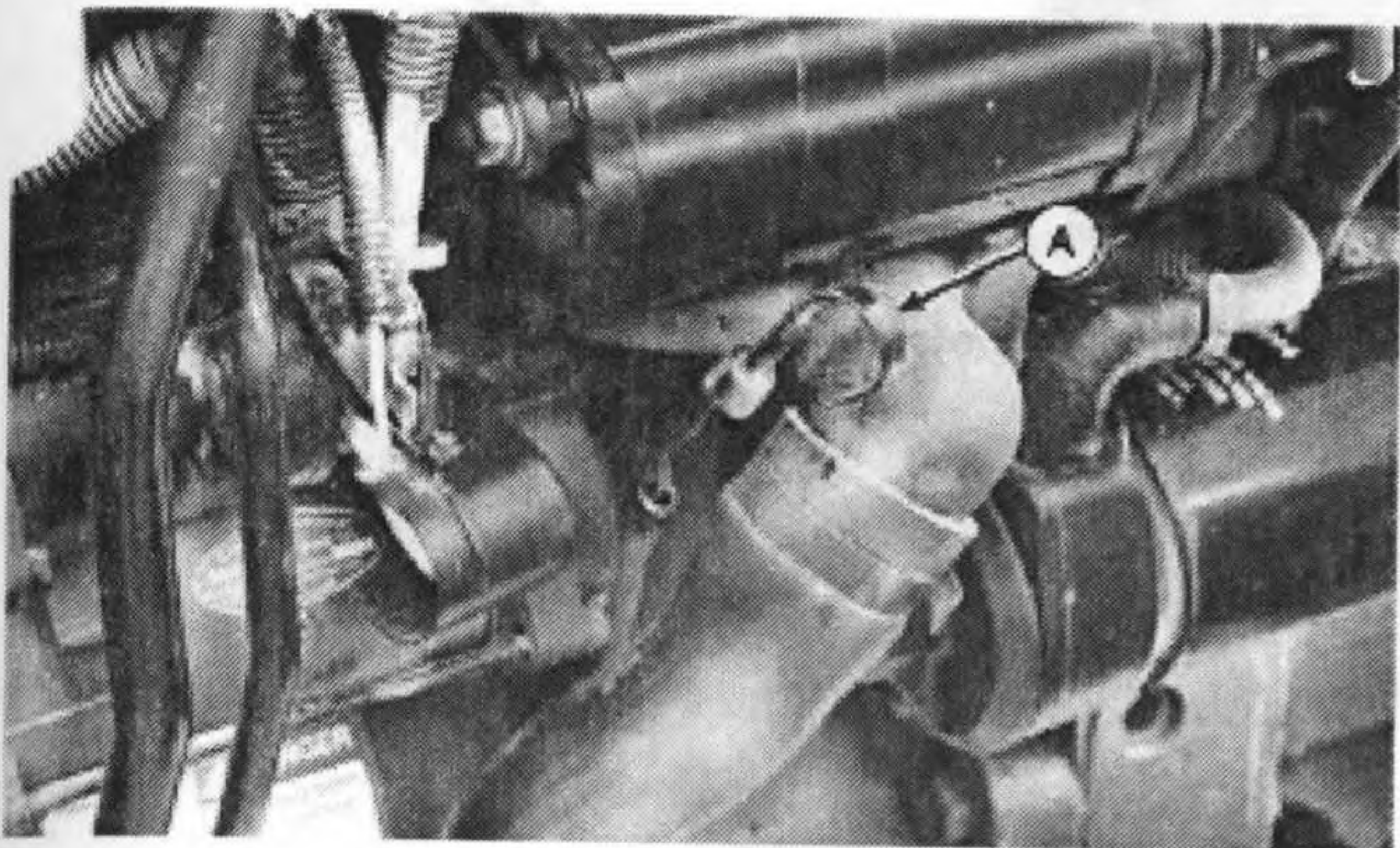
Replace transmission-hydraulic filter element

Change engine oil and filter¹

¹ See Engine Break-In Oil in Service section for additional information.

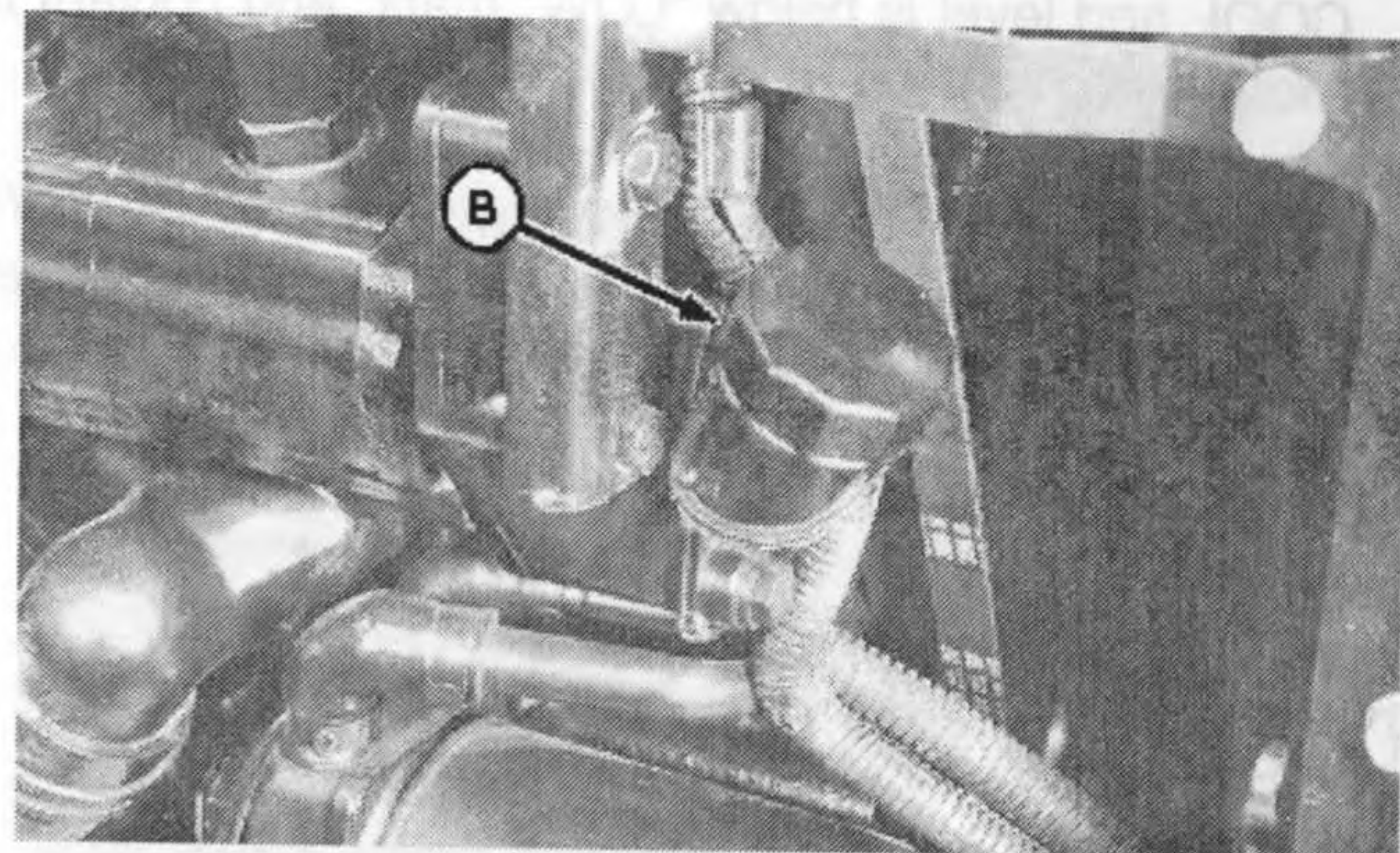
Prestarting Checks

Service Daily Before Start-Up



M46365 -UN-31JAN92

5210 and 5310 Shown



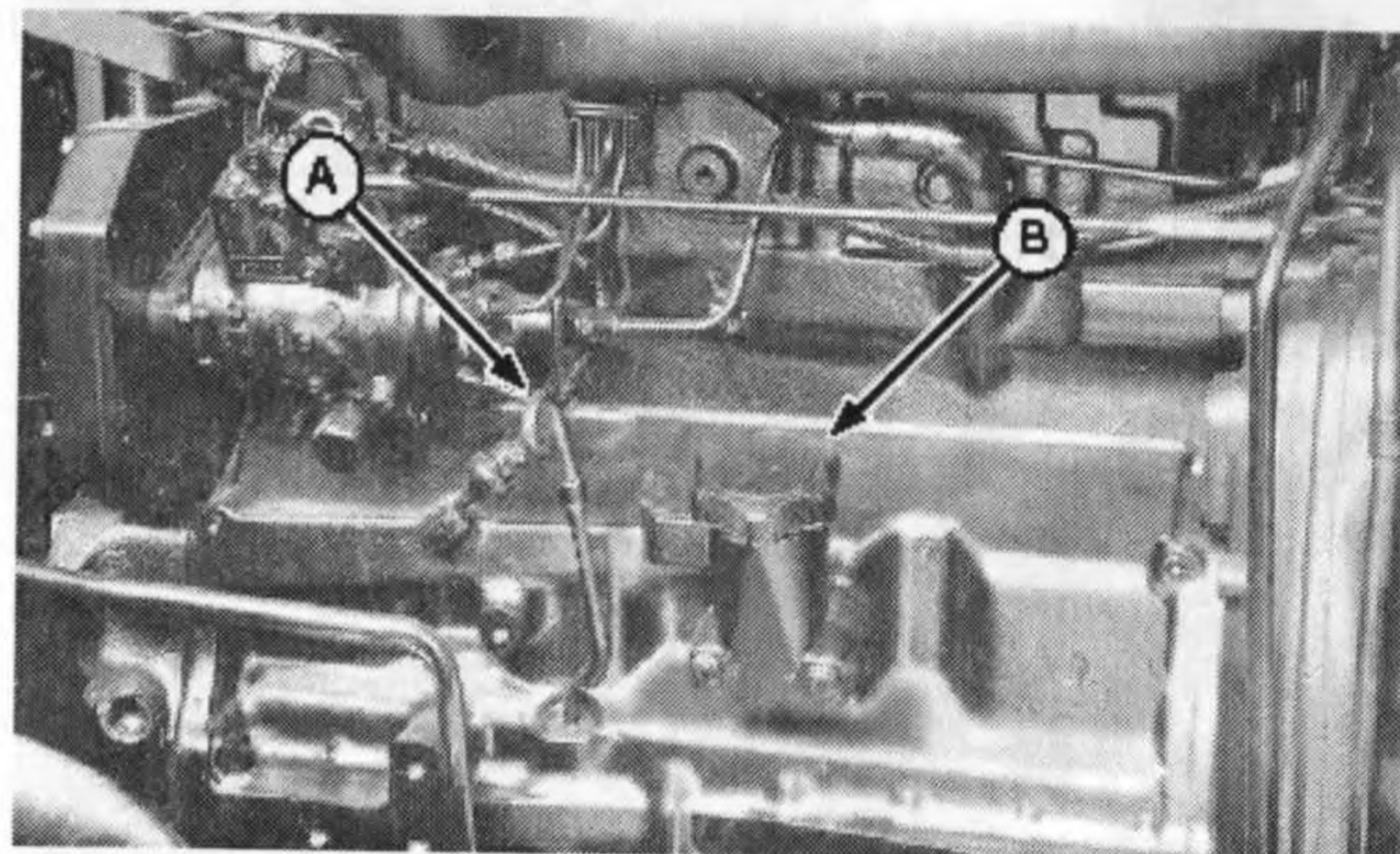
LV1714 -UN-29MAY97

5210 and 5310 Shown

1. Check the engine oil level. Wipe dipstick (A) off and reinsert it fully. Remove and locate oil level.

Safe operating range is between two marks on dipstick. Do not operate engine when oil level is below lower mark on dipstick. Add seasonal viscosity grade oil through filler hole (B). (See Fuel, Lubricants, and Coolant section for oil specifications.)

A—Engine Oil Dipstick
B—Engine Oil Filler Hole



LV1715 -UN-28APR97

5410 and 5510 Shown

Continued on next page

LV,5010PC,B -19-29AUG97-1/2

Prestating Checks

2. Check coolant level in recovery tank (A). If engine is COOL and level is below "LOW" mark, add coolant to recovery tank to bring level to "LOW" mark.

NOTE: Coolant level with a cold engine should be at the "LOW" mark. A tractor at operating temperature should have a coolant level at the "FULL" mark.

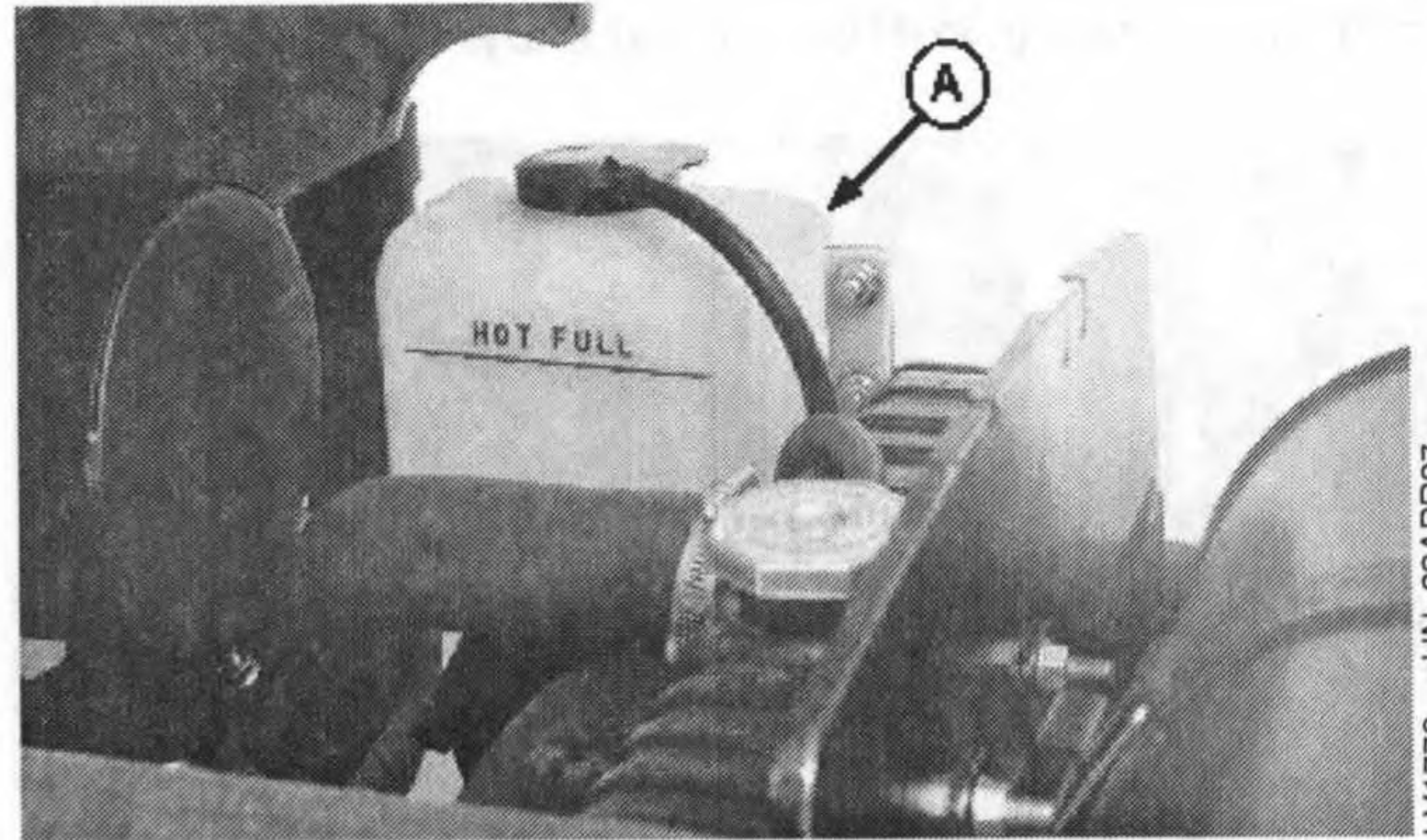
3. Lubricate the following items at 10 hour intervals if operating in extremely wet or muddy conditions.

- Front axle pivot pin(s)
- Steering spindles
- Tie rod ends

Use multipurpose grease. (See Fuels, Lubricants, and Coolants section for grease specifications.)

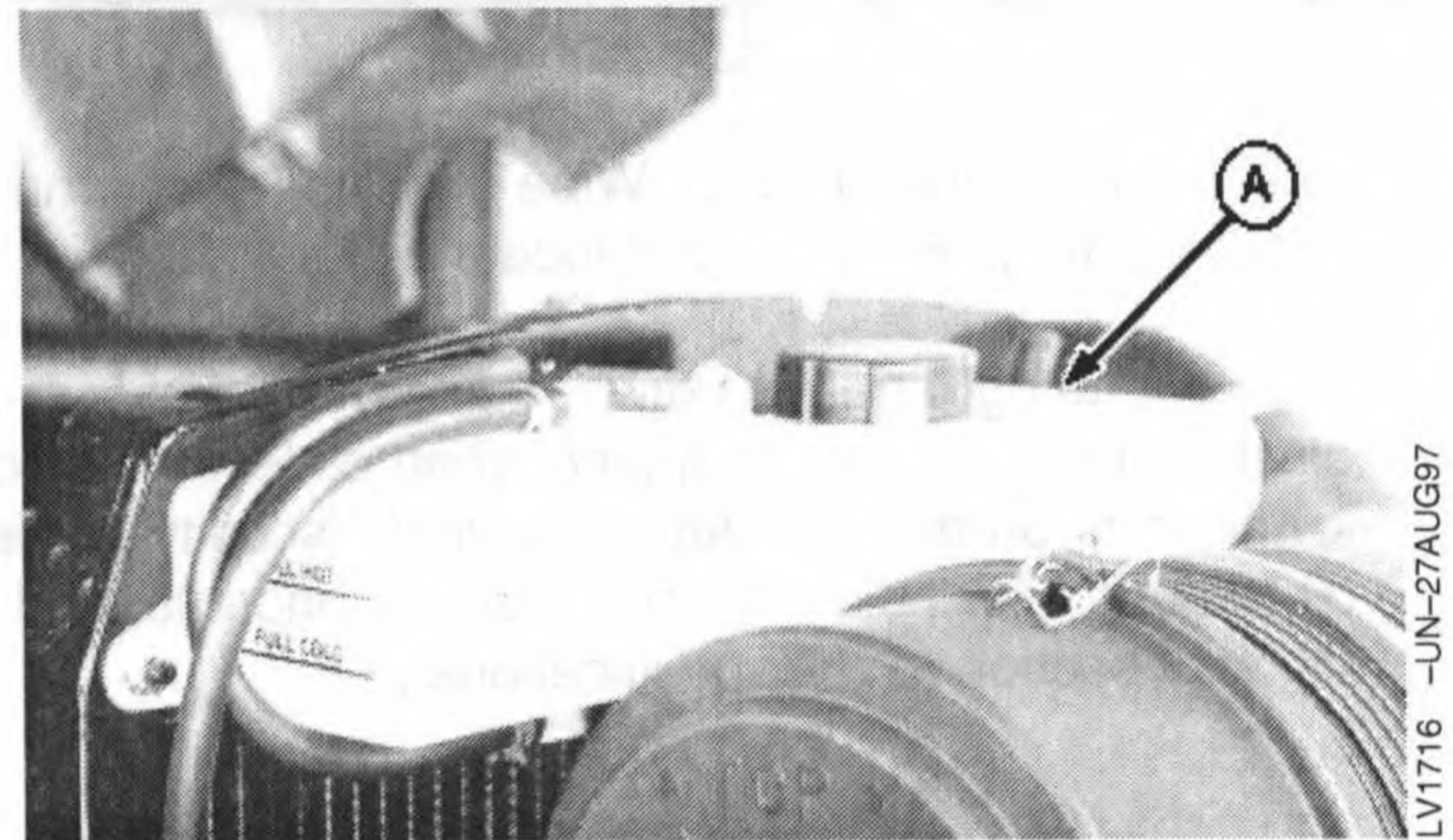
For detailed information see Lubrication and Maintenance section.

A—Coolant Recovery Tank



5210 and 5310 Shown

LV1778 -UN-23APR97



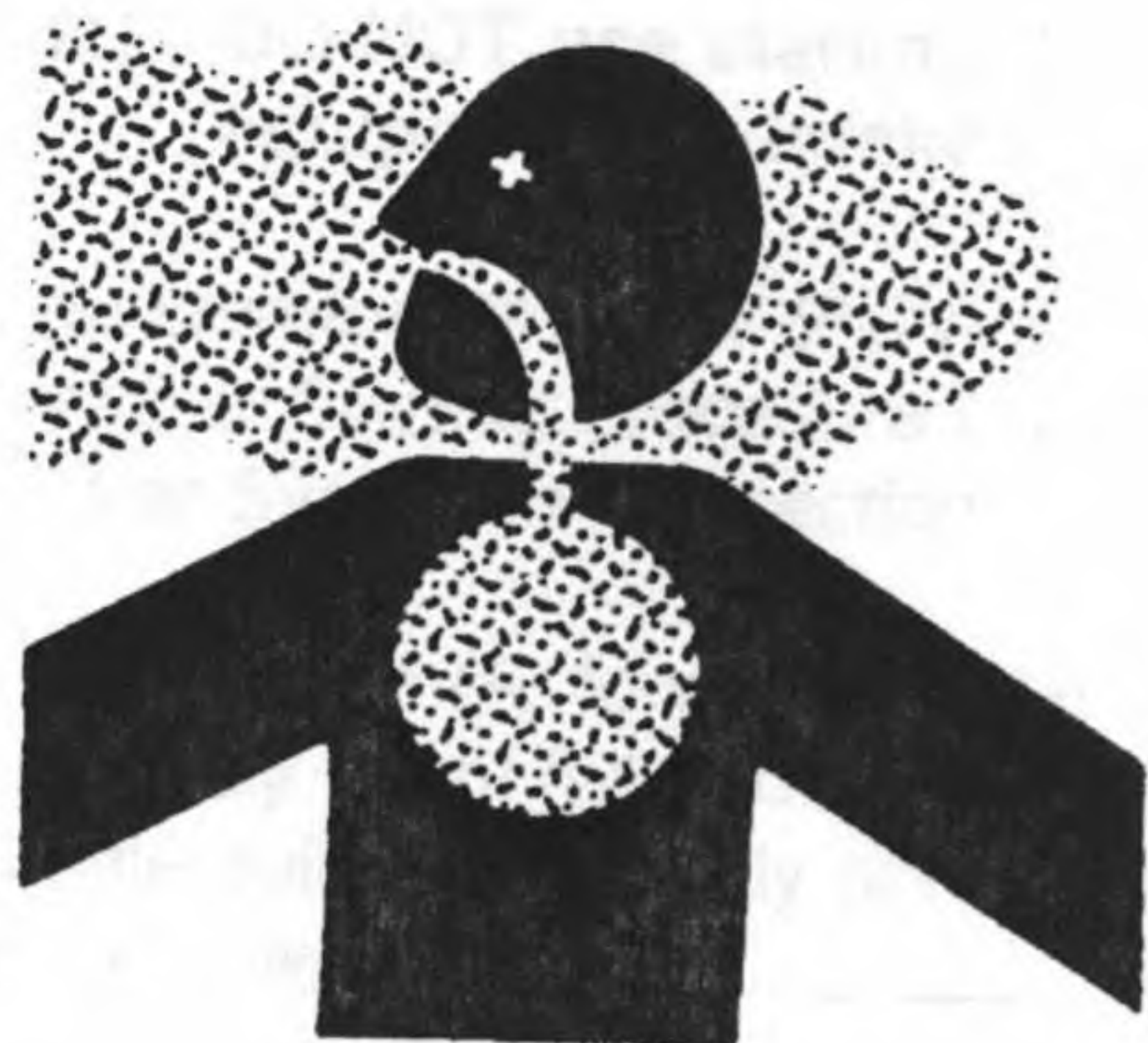
5410 and 5510 Shown

LV1716 -UN-27AUG97

LV,5010PC,B -19-29AUG97-2/2

Operating the Engine

Before Starting the Engine



TS220 -UN-23AUG88



CAUTION: Prevent asphyxiation. Engine exhaust fumes can cause sickness or death to you or someone else.

If you must operate engine in a building, be positive there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to bring enough outside air into the area.

1. Check fuel gauge to be sure tractor has plenty of fuel.

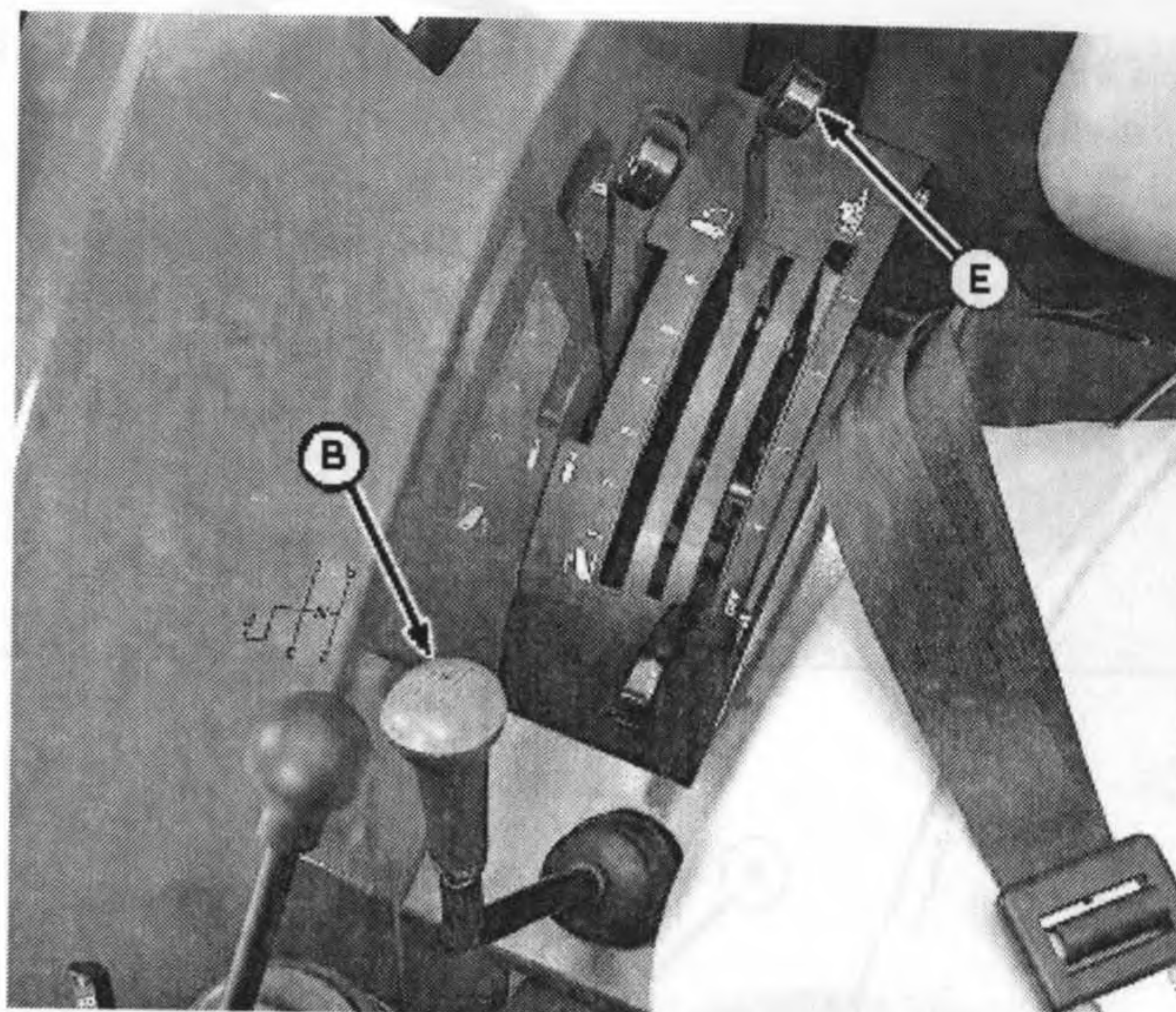
2. CollarShift or SyncShuttle™ transmissions:

Place gear shift lever (B) in Neutral or Park, range shift lever (C) in Neutral, and PTO lever (D) in OFF positions. Starter will not operate if gear shift lever and PTO lever are not in these positions.

PowrReverser™ transmission:

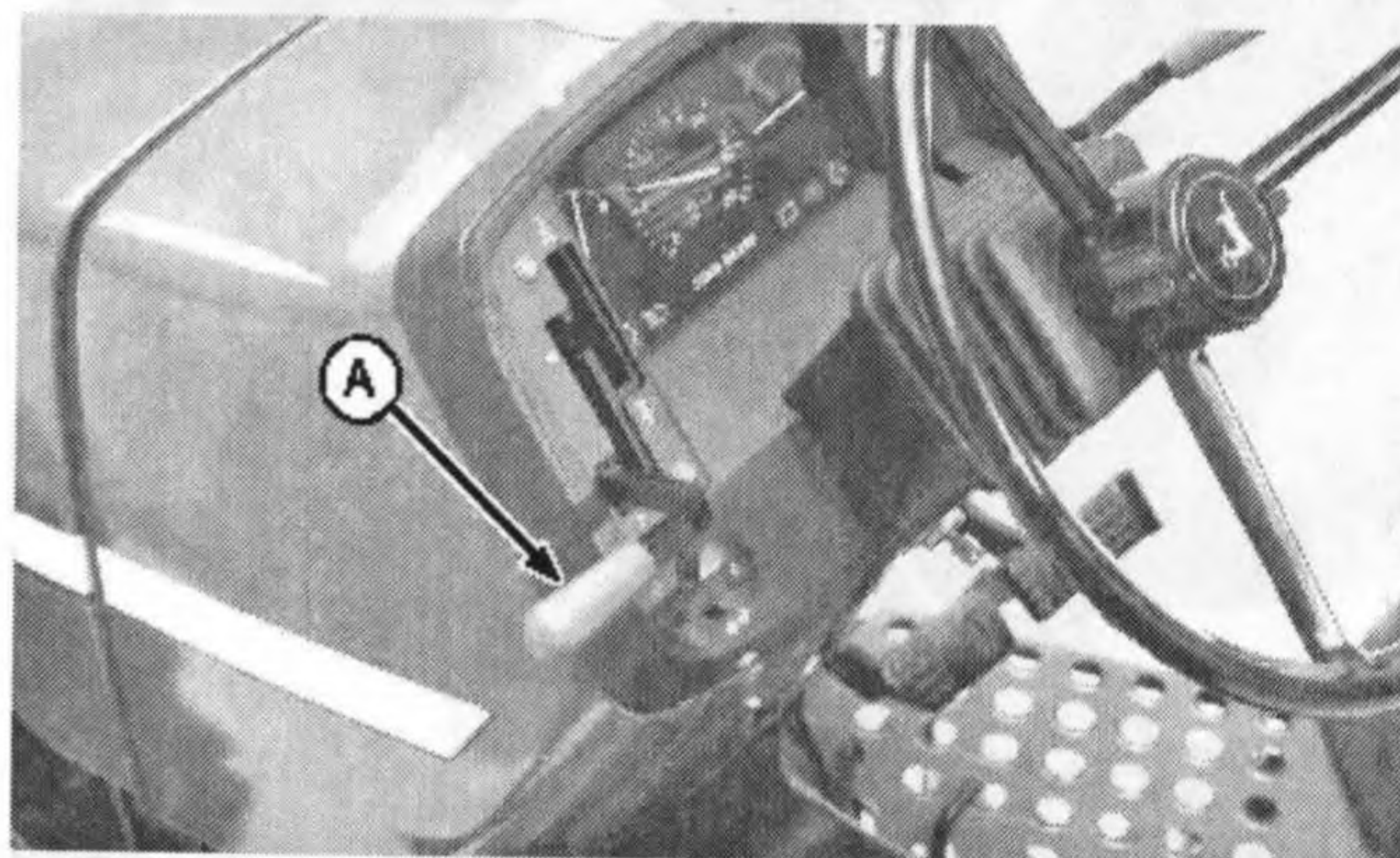
Place Forward-Neutral-Reverse lever (A) in Neutral or Park, gear shift lever (B) in Neutral, range shift lever (C) in Neutral, and PTO lever (D) in OFF positions. Starter will not operate if Forward-Neutral-Reverse lever and PTO lever are not in these positions.

- A—Forward-Neutral-Reverse Lever
- B—Gear Shift Lever
- C—Range Shift Lever
- D—PTO Control Lever



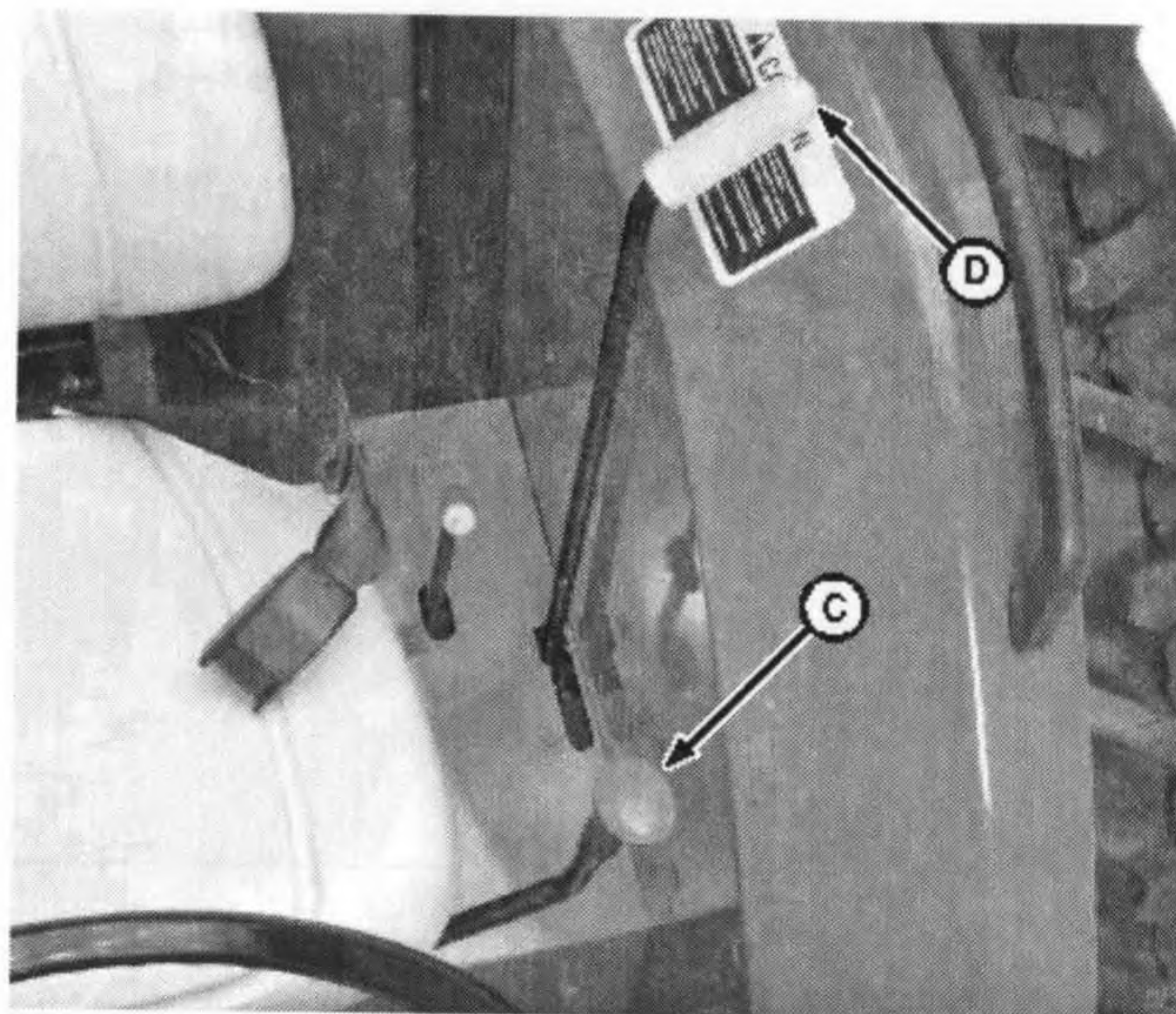
LV1935 -UN-04JUN97

CollarShift and SyncShuttle Transmissions



LV1983 -UN-26AUG97

PowrReverser Transmission



LV1936 -UN-04JUN97

SyncShuttle is a trademark of Deere & Company.
PowrReverser is a trademark of Deere & Company.

Continued on next page

LV50100E,A -19-29AUG97-1/2

Operating the Engine

3. Place rockshaft control lever (E) in lower position.
4. Check indicator lights. Indicators should glow when key switch is turned to the "ON" position.

If any indicator does not function properly, see your John Deere dealer.

LV,5010OE,A -19-29AUG97-2/2

Starting the Engine

IMPORTANT: DO NOT use starting fluid. Tractor is equipped with intake air heater.

NOTE: If temperature is below 5°C (40°F), refer to Cold Weather Starting Procedure Using Intake Air Heater System in this section.

1. Push hand throttle (A) forward off idle position (approximately 1/3 of full throttle). Engine may not start with throttle pulled completely down.

CAUTION: Avoid possible injury or death from a machine runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear and move if normal circuitry is bypassed.

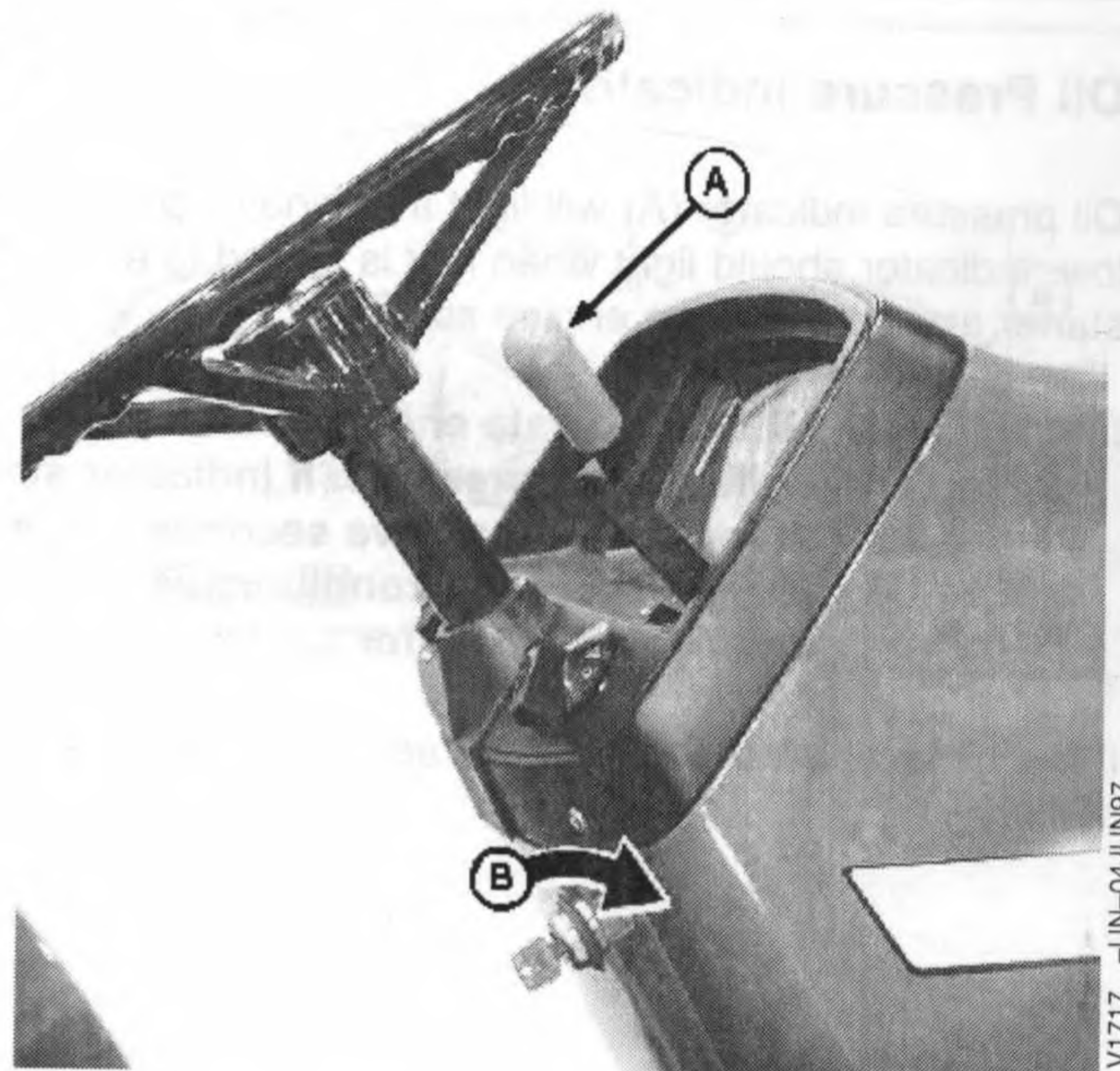
Start engine only from operator's seat with transmission in PARK or NEUTRAL.

NEVER start engine while standing on ground.

IMPORTANT: DO NOT run a cold engine at full throttle.

2. Depress clutch pedal and turn key switch fully clockwise (B) to engage starter. Release key when engine starts. If key is released before engine starts, wait until starter and engine stop turning before trying again.

IMPORTANT: DO NOT operate starter more than 20 seconds at a time. If engine does not start, wait at least two minutes for the starter motor to cool before trying again. If engine does not start in four attempts, refer to "Troubleshooting" section.



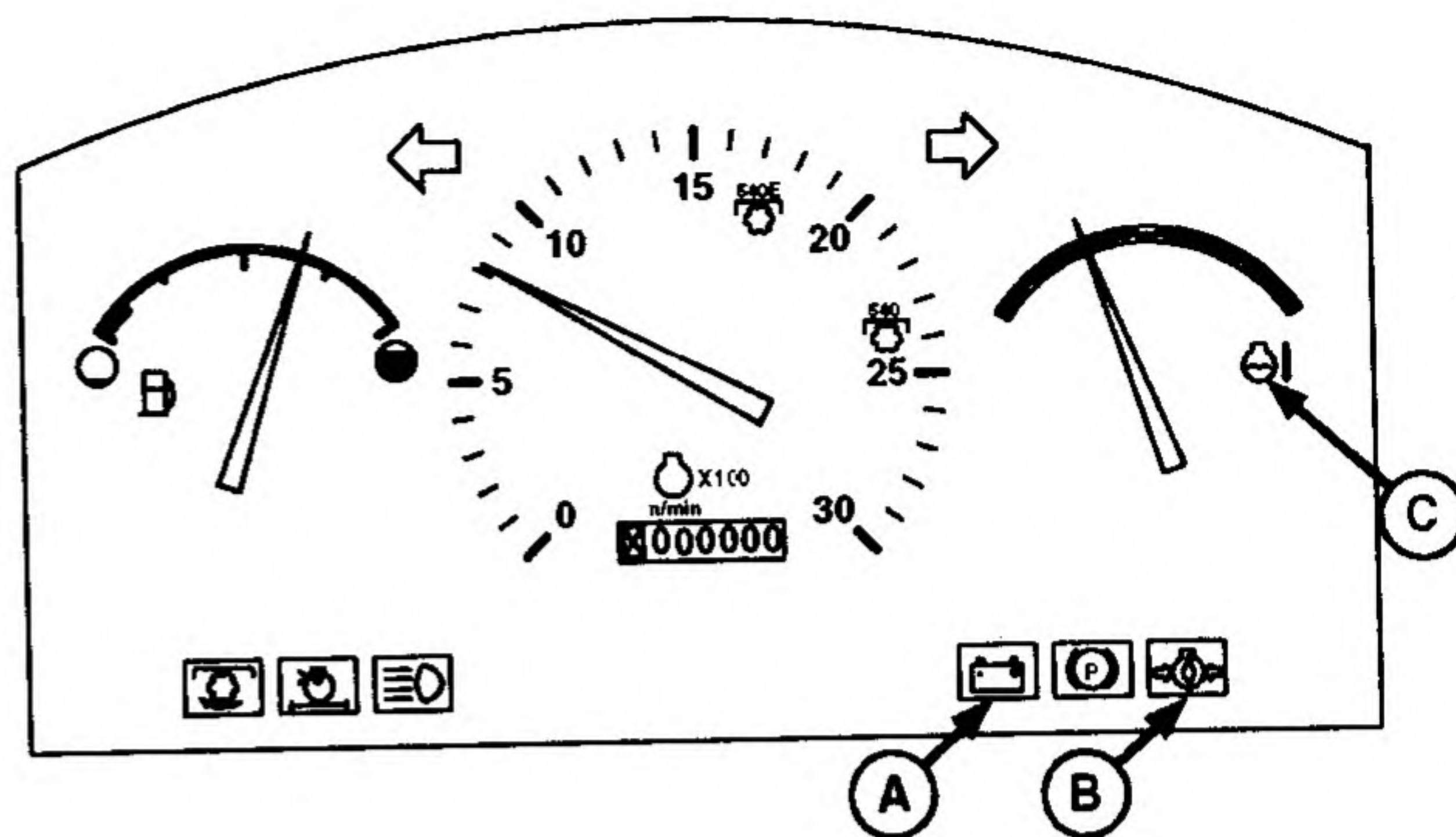
A—Hand Throttle
B—Key Switch ON

LV,50100E,B -19-29AUG97-1/1

Check Instruments After Starting

IMPORTANT: If charging system (A) or oil pressure (B) indicators fail to go out, or temperature gauge (C) indicates hot, stop engine and determine the cause.

A—Charging System Indicator
B—Oil Pressure Indicator



LV,5010OE,C -19-03JUN97-1/1

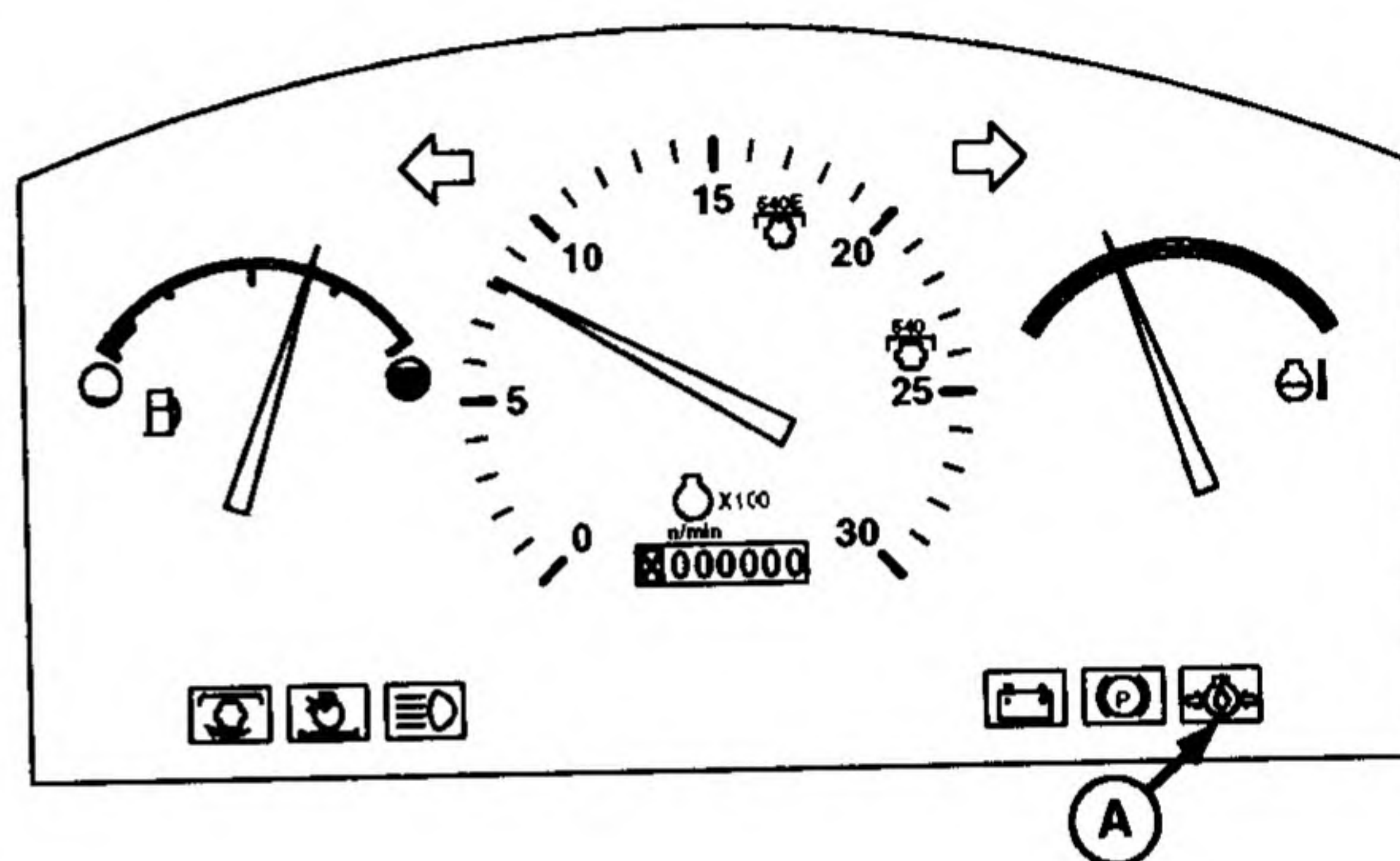
LV1713 -UN-29MAY97

Oil Pressure Indicator

Oil pressure indicator (A) will light if engine oil pressure is low. Indicator should light when key is turned to engage starter and go out when engine starts.

IMPORTANT: NEVER operate engine without sufficient oil pressure. If indicator stays lit for longer than five seconds under normal operating conditions, stop engine and check for cause.

If low oil level is not the problem, see your John Deere dealer.



A—Oil Pressure Indicator

LV,5010OE,D -19-26MAY99-1/1

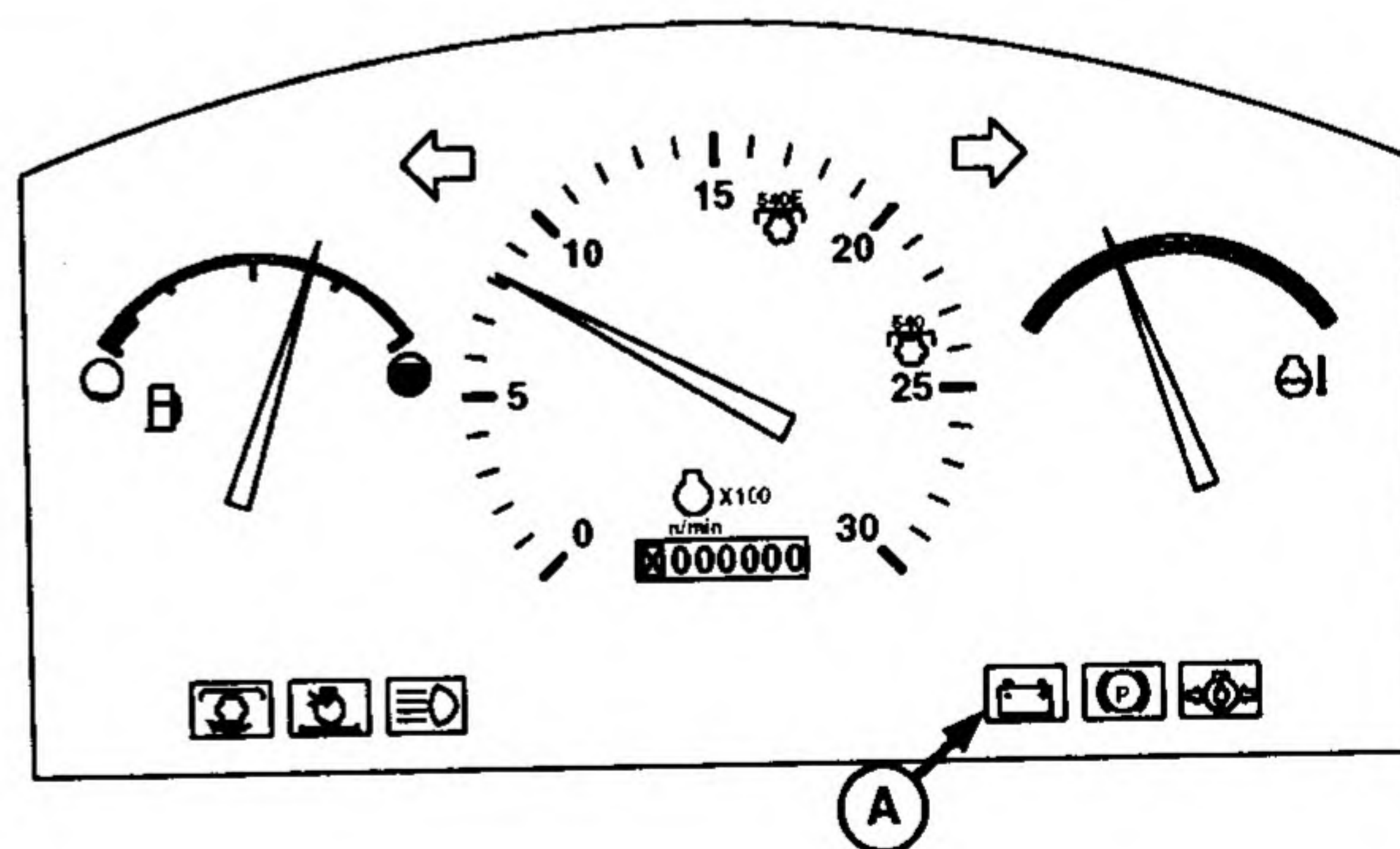
LV1720 -UN-29MAY97

Charging System Indicator

Charging system indicator (A) will light when alternator output is low. Indicator should light when key is turned to engage starter, and go out when engine starts.

If indicator stays lit for longer than five seconds in normal operation, stop engine and check for cause. If loose or broken fan belt is not the cause, see your John Deere dealer.

A—Charging System Indicator



LV,5010OE,E -19-26MAY99-1/1

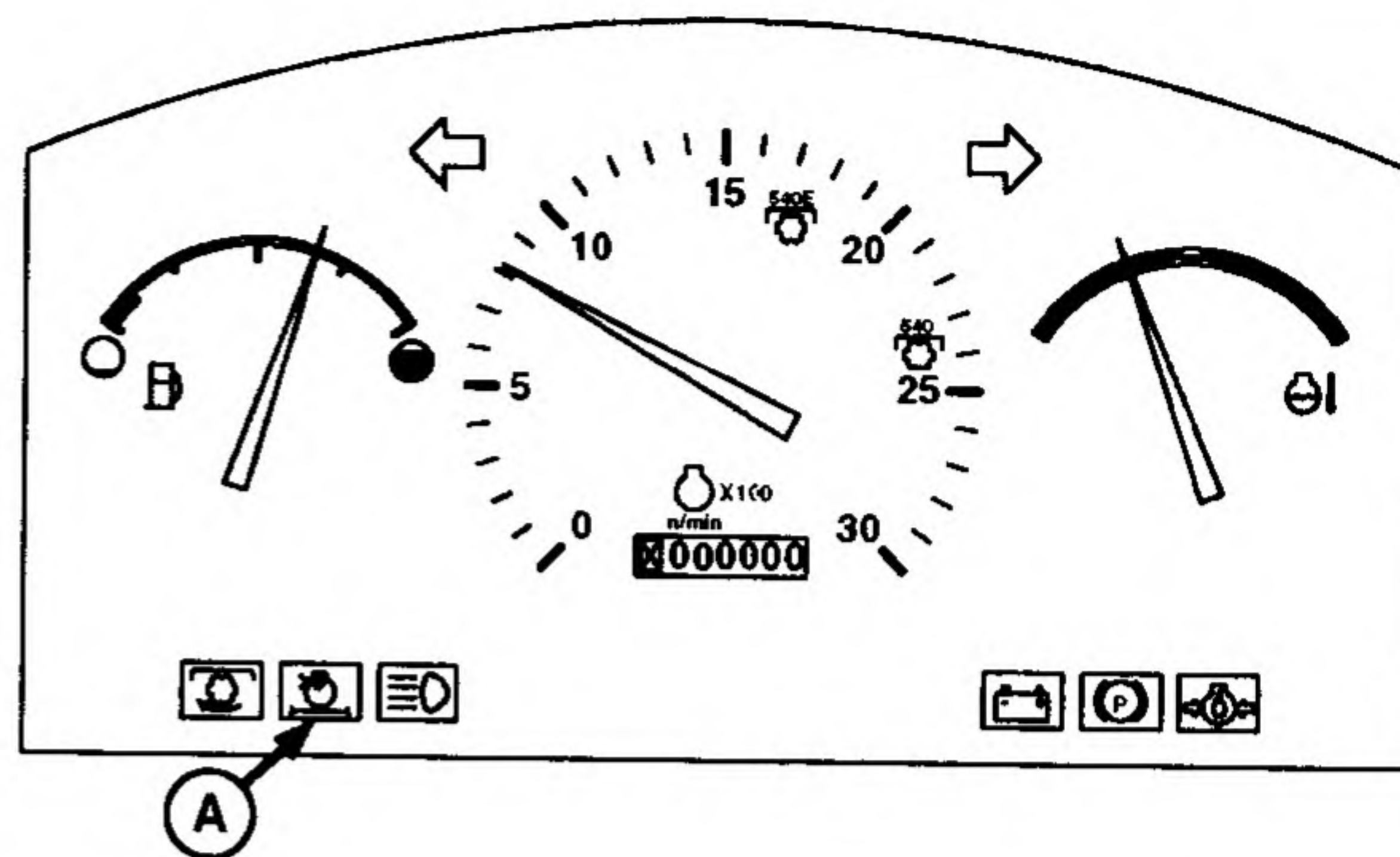
LV1721 -UN-29MAY97

Air Restriction Indicator

Air restriction indicator (A) will light if air cleaner becomes plugged. Service air cleaner as soon as possible.

Indicator should light momentarily when key is turned slowly to starter engagement position.

A—Air Restriction Indicator



LV1722 -UN-29MAY97

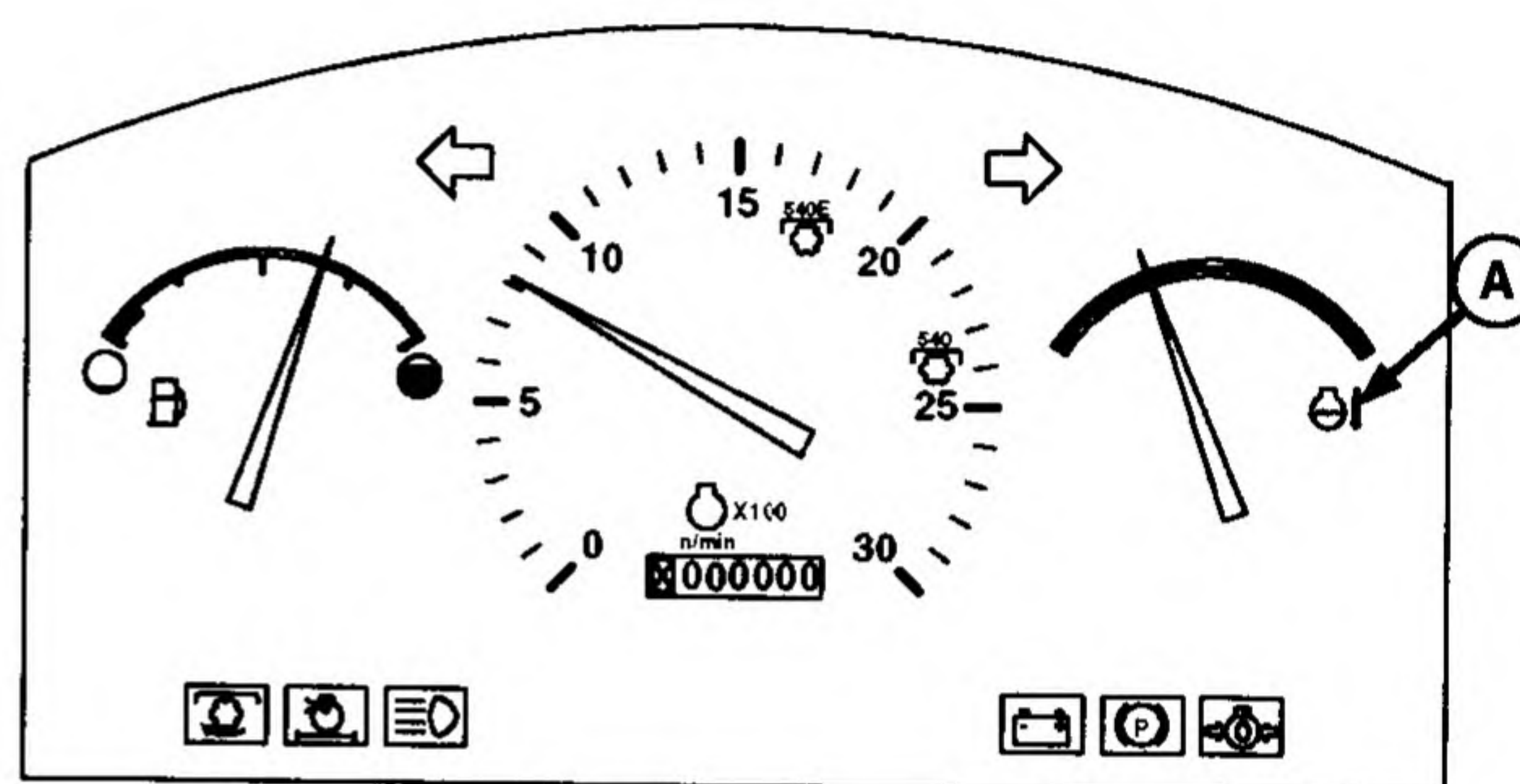
LV,5010OE,F -19-26MAY99-1/1

Coolant Temperature Gauge

The needle on the temperature gauge (A) rises as engine warms up. If needle reaches red zone, stop engine and determine the cause.

Check coolant level in coolant recovery tank and radiator when engine cools. Also check grille, radiator and radiator screen for plugging. Check fan belt tension. If problem is not corrected, see your John Deere dealer.

A—Coolant Temperature Gauge



LV1723 -UN-29MAY97

LV,5010OE,G -19-26MAY99-1/1

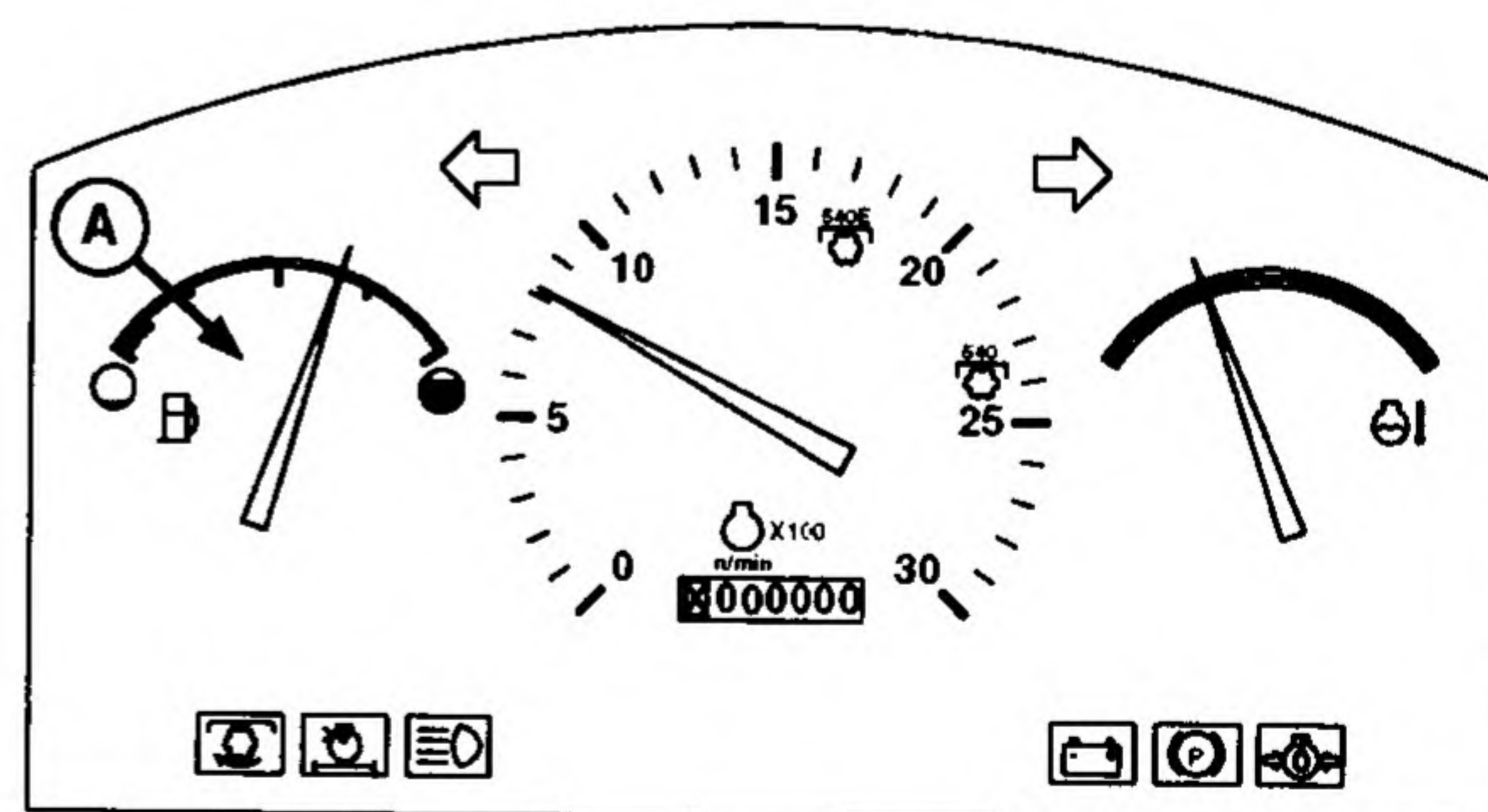
Watch Fuel Level

Stop to refuel before gauge (A) reaches empty mark.

IMPORTANT: Use diesel fuel only. See Fuel and Lubricants section for fuel specifications.

Should tractor run out of fuel and not start in several tries, air must be bled from fuel system. (See Bleeding Fuel System in Service section).

A—Fuel Gauge



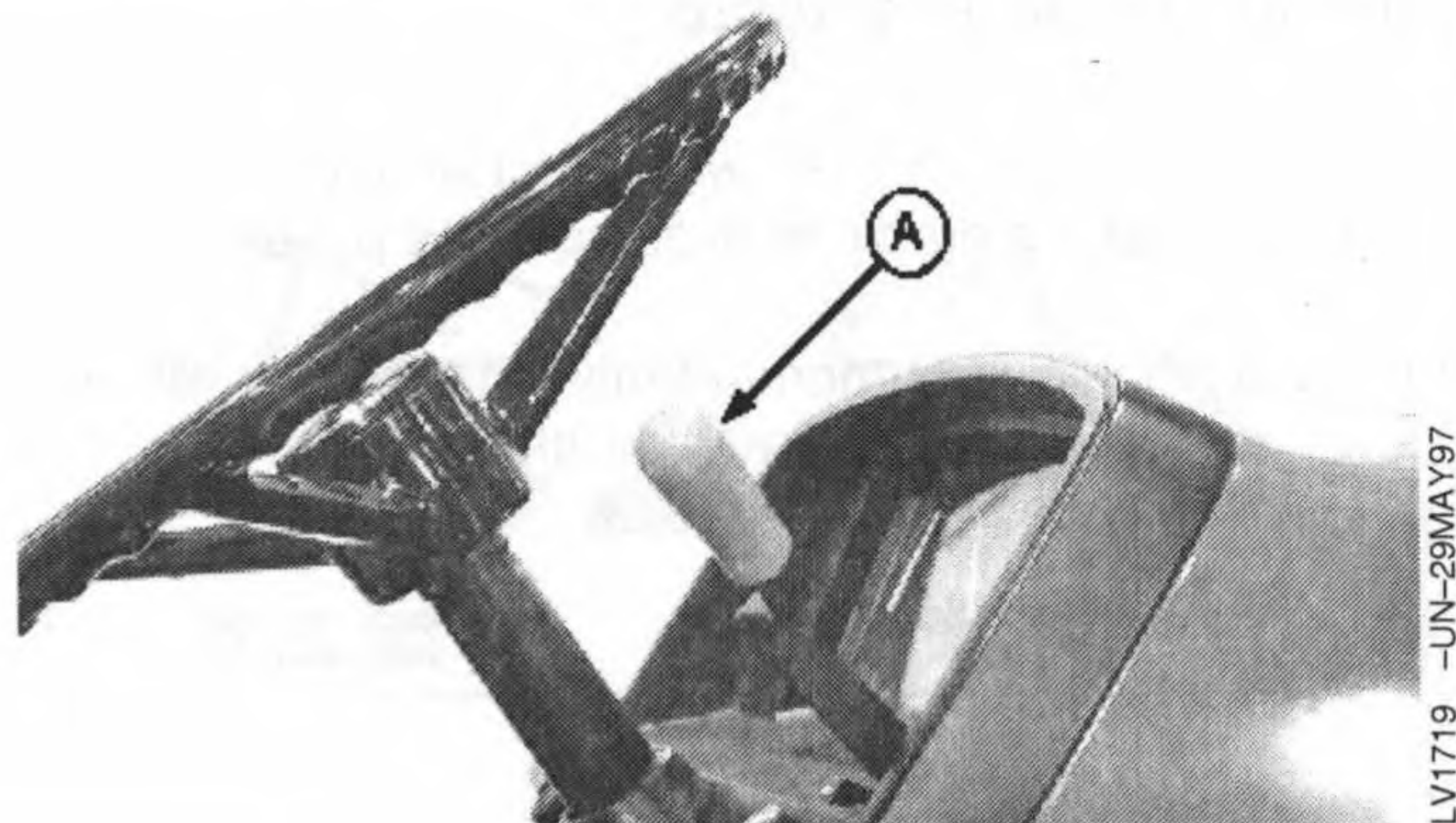
LV1724 -UN-29MAY97

LV,5010OE,H -19-03JUN97-1/1

Changing Engine Speeds

To increase speed, push hand throttle (A) forward.

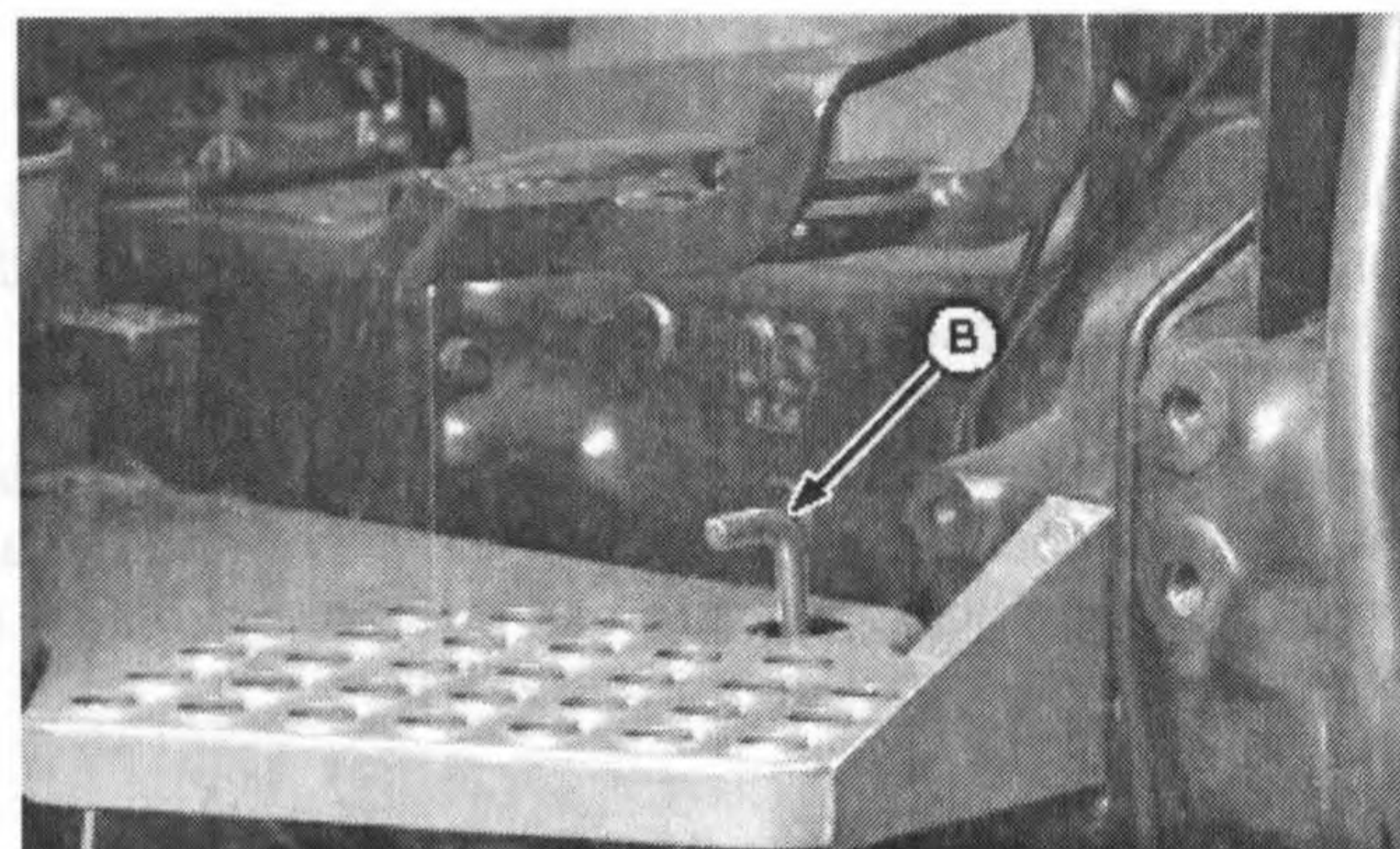
A—Hand Throttle



LV,5010OE,I -19-06JUN97-1/2

To temporarily increase engine speed above hand throttle setting, depress foot throttle (B).

B—Foot Throttle



LV,5010OE,I -19-06JUN97-2/2

Warming Up the Engine

Do not place tractor under full load until it is properly warmed up.

1. Idle engine at about 1500 rpm for several minutes.
2. Run engine at about 1900 rpm and under light load until engine reaches normal operation condition.

NOTE: If hydraulic functions are slow, see *Warming Hydraulic Oil in Rockshaft and 3-Point Hitch section.*



LV,5010OE,J -19-03JUN97-1/1

Restart Stalled Engine

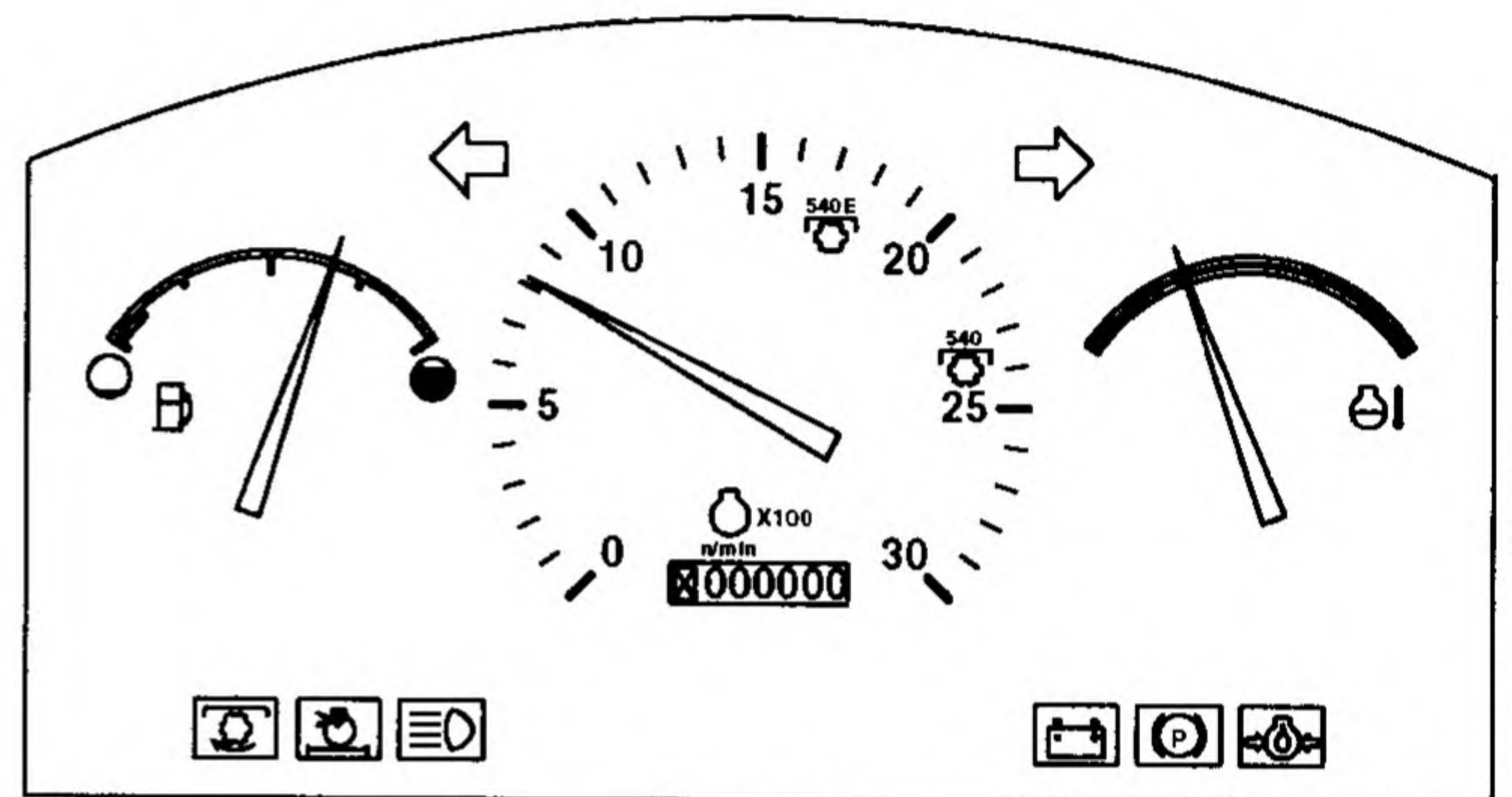
Should the engine stall when operating under load, depress clutch and restart it immediately to prevent abnormal heat build up and continue with normal operation or operate at slow idle for one or two minutes before stopping.

LV,5010OE,P -19-29AUG97-1/1

Avoid Idling the Engine

Allowing engine to idle at low rpm uses fuel inefficiently, and can cause a build-up of carbon in the engine.

If tractor must be left with the engine running more than three or four minutes, minimum engine speed should be 1200 rpm.



LV,5010OE,K -19-03JUN97-1/1

Observe Engine Work and Idle Speeds

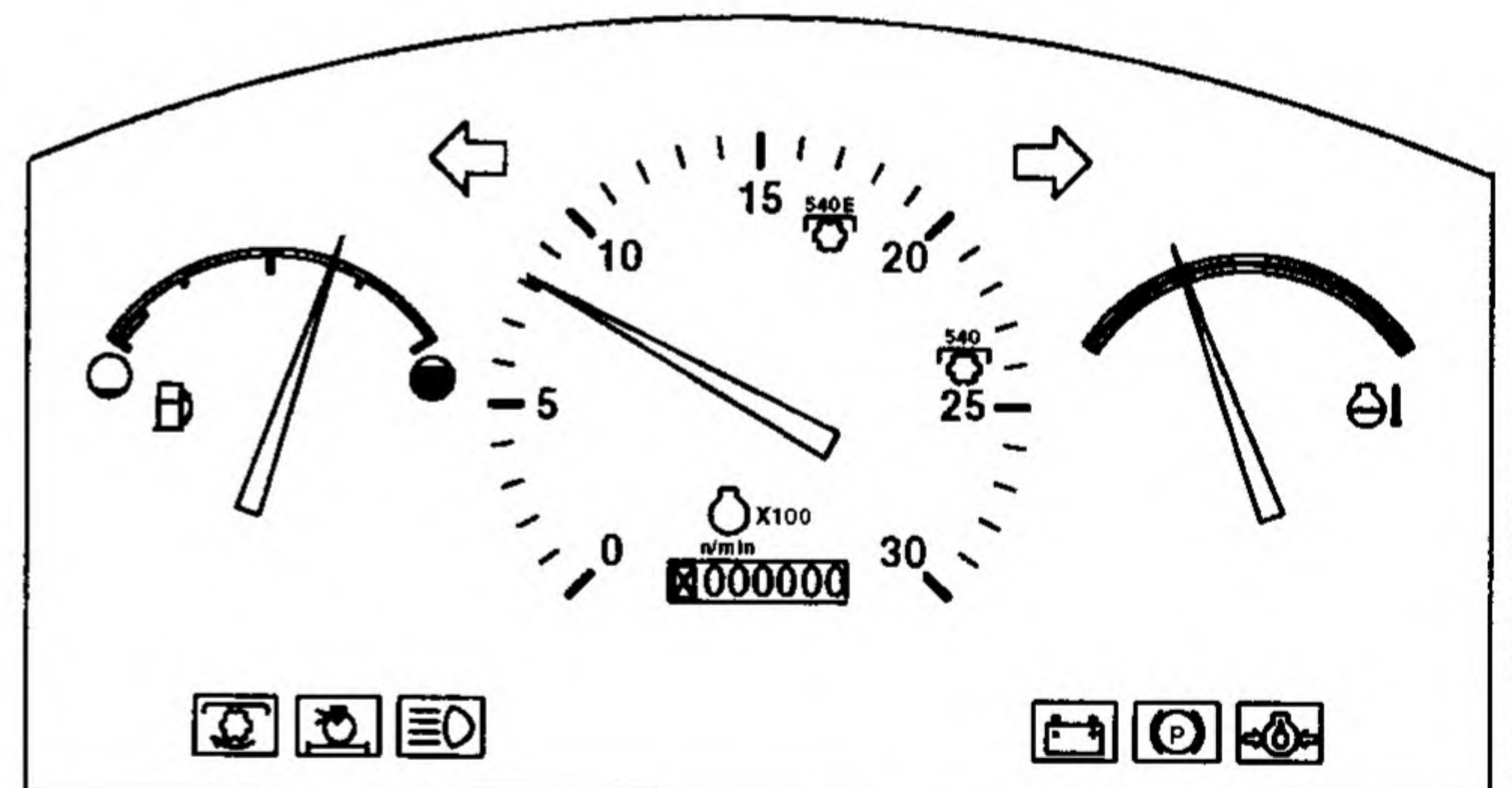
Slow idle speed should be 825—875 rpm. At light or no load, full throttle speed will increase to 2600 rpm.

Normal working speed is 1600 rpm to 2400 rpm rated speed. Within these limits engine can be put under full load.

NOTE: With the PTO shift lever in 540E position, engine fast idle speed above 1900 rpm (no load) or 1700 rpm (loaded) cannot be obtained with either the hand or foot throttle.

For correct PTO speed, run engine at 2400 rpm for standard 540 rpm operation (load requiring full engine power) or at 1700 rpm for 540E economical operation (lighter load).

IMPORTANT: 540E PTO is a factory installed option on SyncShuttle™ transmissions only.



Working With Speed/Hour Meter

Tachometer (A) shows engine rpm, read in hundreds.

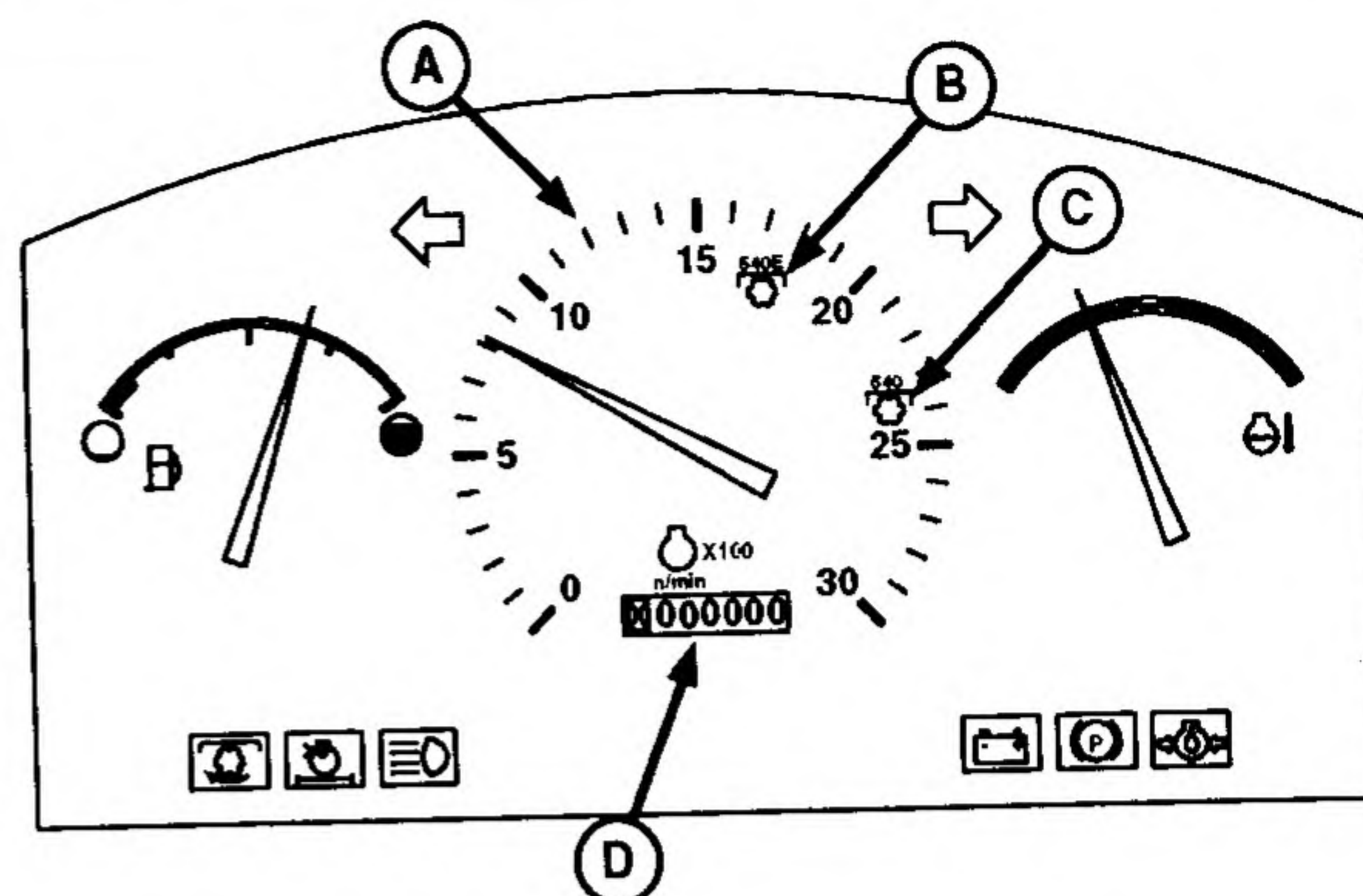
IMPORTANT: 540E PTO (B) is a factory installed option on SyncShuttle™ transmissions only.

NOTE: With the PTO shift lever in 540E position, engine fast idle speed above 1900 rpm (no load) or 1700 rpm (loaded) cannot be obtained with either the hand or foot throttle.

For standard 540 rpm PTO speed, increase engine speed until tachometer needle is aligned with 2400 rpm mark (C).

SyncShuttle™ Transmissions: For economical 540E PTO (B) operation (if equipped), increase engine speed until tachometer needle is aligned with 1700 rpm mark (B).

Hour meter (D) shows hours of operation in full hours and tenths.



- A—Tachometer
- B—1700 rpm Mark (540E)
- C—2400 rpm Mark (540)
- D—Hour Meter

LV1744 -UN-29MAY97

SyncShuttle is a trademark of Deere & Company.

LV,50100E,M -19-09SEP97-1/1

Stopping the Engine

1. Pull hand throttle (A) back to slow idle position. Allow engine to idle for one to two minutes.

IMPORTANT: Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

2. Turn key switch to the "OFF" position.

CAUTION: Remove key from key switch to prevent operation by untrained personnel.

A—Hand Throttle



LV1728 -JUN-30MAY97

LV,5010OE,N -19-26MAY99-1/1

Cold Weather Starting Procedure Using Intake Air Heater System

CAUTION: DO NOT use starting fluid in tractor equipped with an intake air heater system. (See your John Deere dealer for a complete list of other starting aids available.)

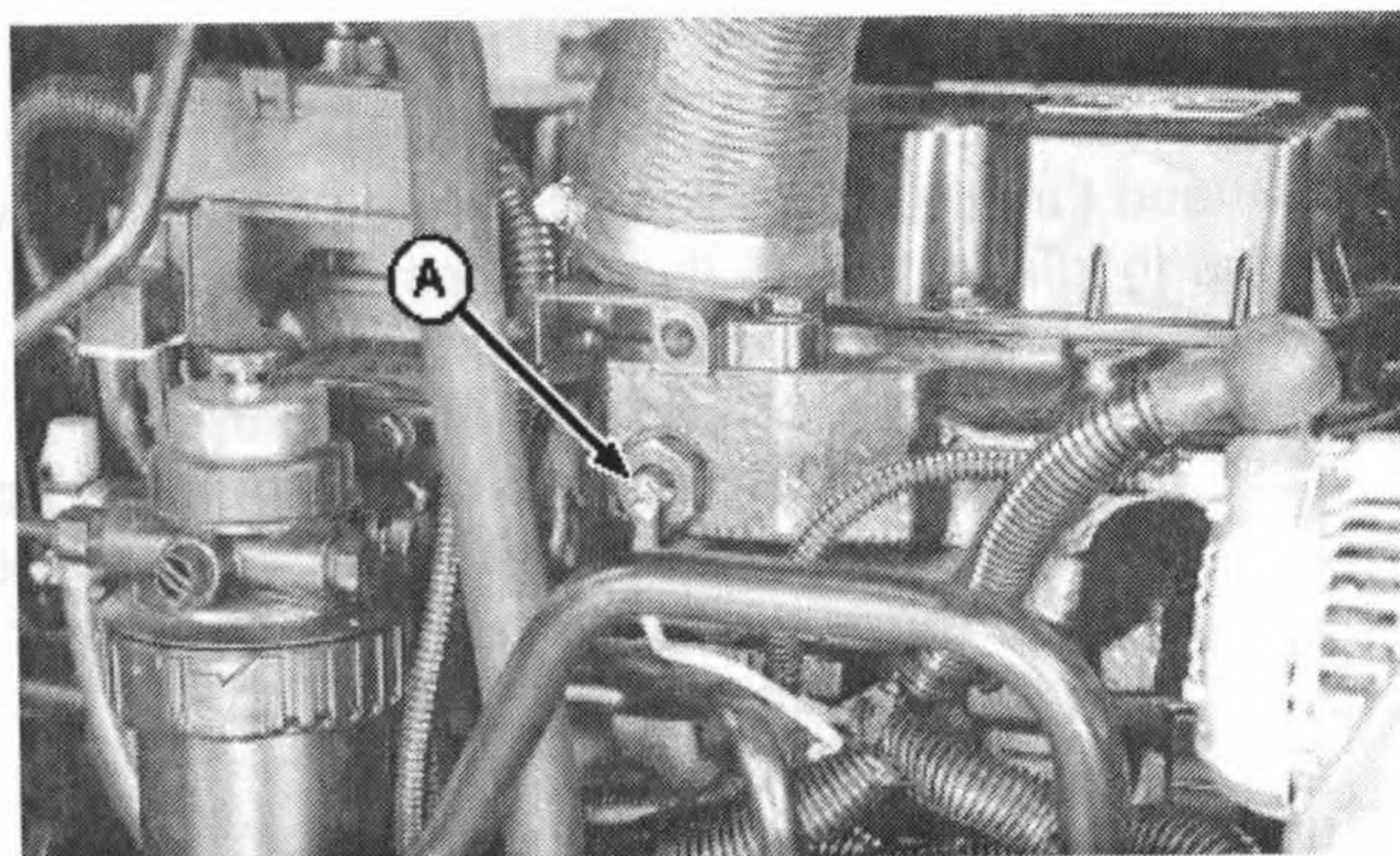
Tractors are equipped with an intake air heater system. An electric heating element (A) warms the intake air.

1. Activate the intake air heater system by turning key (B) to the RUN position. Hold the key in for 10 or 15 seconds for temperatures above -18°C (0°F). Hold key in for 30 seconds when ambient temperature is below 0°C (32°F).
2. Depress clutch pedal and turn key switch clockwise (C) to start engine.
3. If engine runs rough, activate the intake air heater system by holding in on the key switch (B) until engine runs smooth.

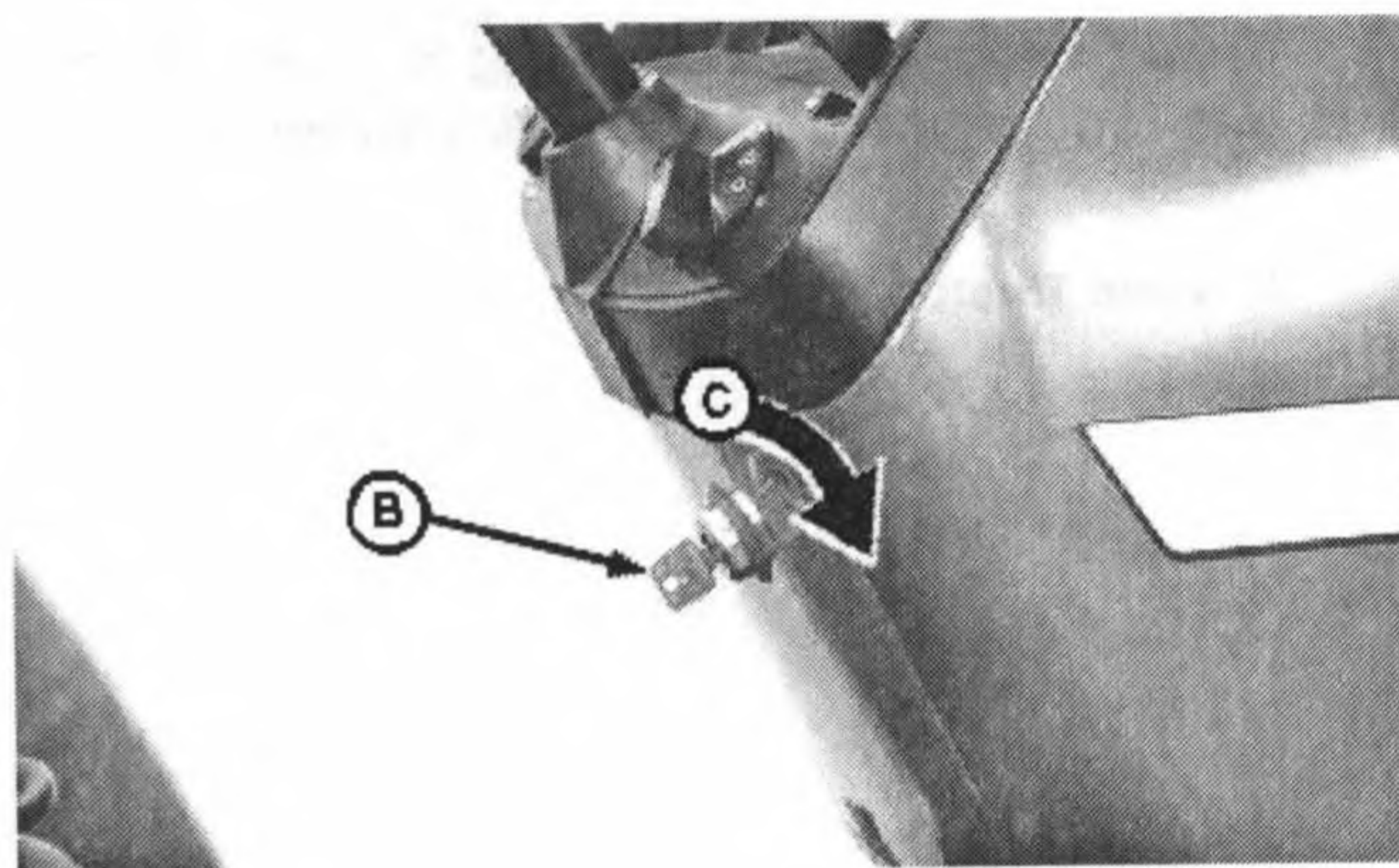
A—Electric Heating Element

B—Key Switch

C—Turning Key Switch in Clockwise Direction



5310 Shown



LV,5010OE,O1 -19-09AUG99-1/1

Using Booster Battery

Battery gas is explosive:

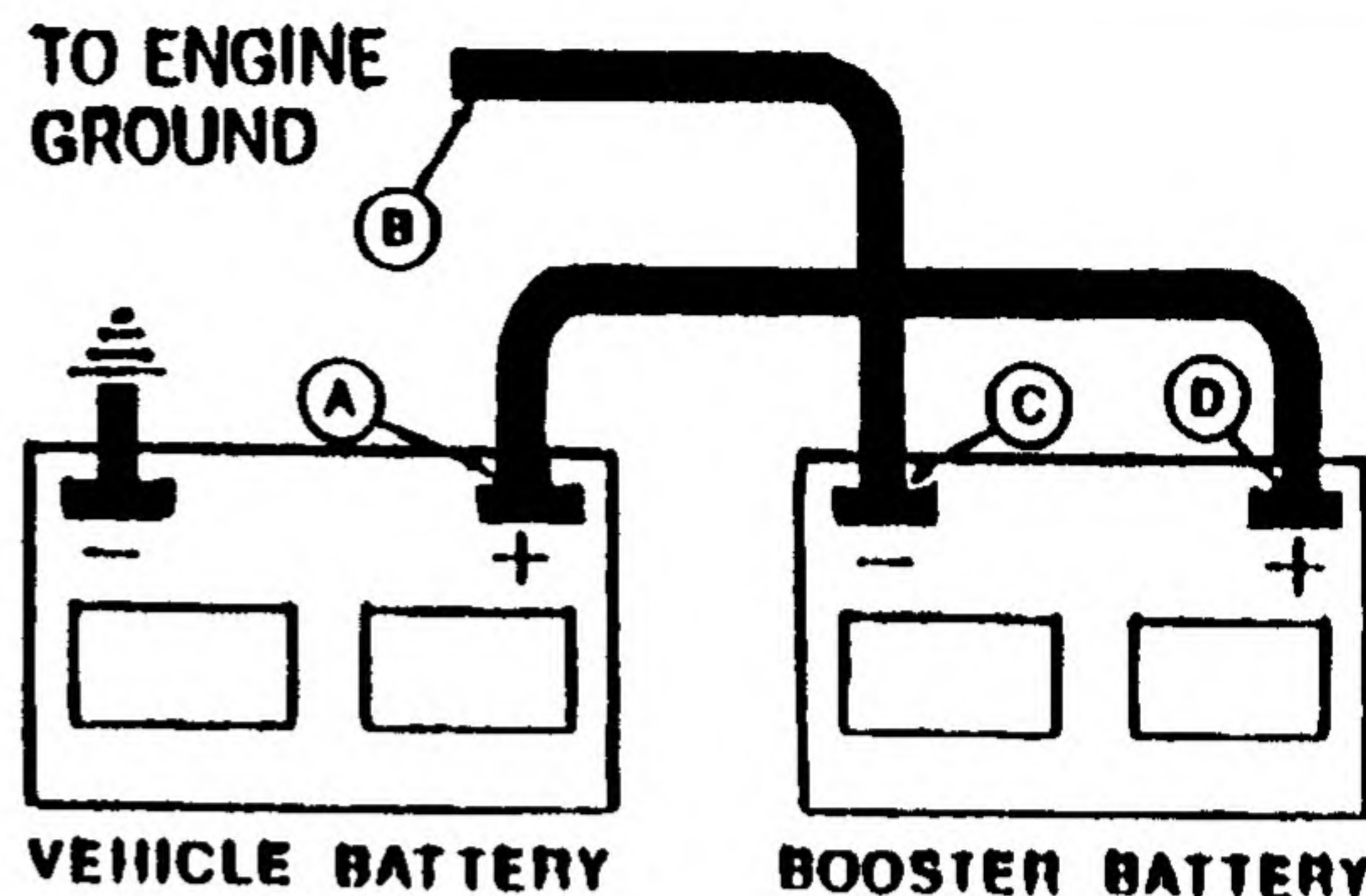
- DO NOT smoke while you charge battery.
- Keep all flames and sparks away.
- DO NOT charge frozen battery.
- DO NOT connect booster battery negative (—) cable to starting vehicle negative (—) terminal.

1. Access battery. (See procedure in Service section.)
2. Connect positive (+) booster cable to booster battery positive (+) post (D).
3. Connect the other end of positive (+) booster cable to:

Open station: Tractor battery positive (+) post (A).

Cab: Large post on starter solenoid (battery positive (+) cable attached to it).

4. Connect negative (—) booster cable to booster battery negative (—) post (C).
5. Connect the other end of negative (—) booster cable to engine ground (B), away from battery or starter.



A—Tractor Battery Positive (+) Post
 B—Engine Ground
 C—Booster Battery Negative (—) Post
 D—Booster Battery Positive (+) Post

M71044 -19-24JUL90

LV,5010DT,N -19-09SEP97-1/1

Driving the Tractor

Operator Training Required

- Study the Operation section of this manual before operating tractor.
- Operate tractor in an open, unobstructed area under direction of an experienced operator.
- Learn use of all controls.
- Operator experience is required to learn moving, stopping, turning and other operating characteristics of tractor.

MX,DTIP,AA -19-18MAR92-1/1

Avoid Contact With Pesticides

! CAUTION: This enclosed cab does not protect against inhaling harmful pesticides.

1. When operating in an environment where harmful pesticides are present, wear a long-sleeved shirt, long-legged pants, shoes, and socks.
2. If pesticide use instructions require respiratory protection, wear an appropriate respirator inside the cab.
3. Wear personal protective equipment as required by the pesticide use instructions when leaving the enclosed cab:
 - and entering a treated area,
 - to work with contaminated application equipment such as nozzles which must be cleaned, changed, or redirected.
 - to become involved with mixing and loading activities.
4. Before re-entering the cab, remove protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container, such as a plastic bag.
5. Clean your shoes or boots to remove soil or other contaminated particles prior to entering the cab.



TS220 -UN-23AUG88

TS272 -UN-23AUG88

DX,CABS1 -19-03MAR93-1/1

Driving on Public Roads



CAUTION: When transporting on a public road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local governmental regulations. Various safety devices are available from your John Deere dealer. Keep safety items in good condition. Replace missing or damaged items.

Observe the following precautions when operating the tractor on the road:

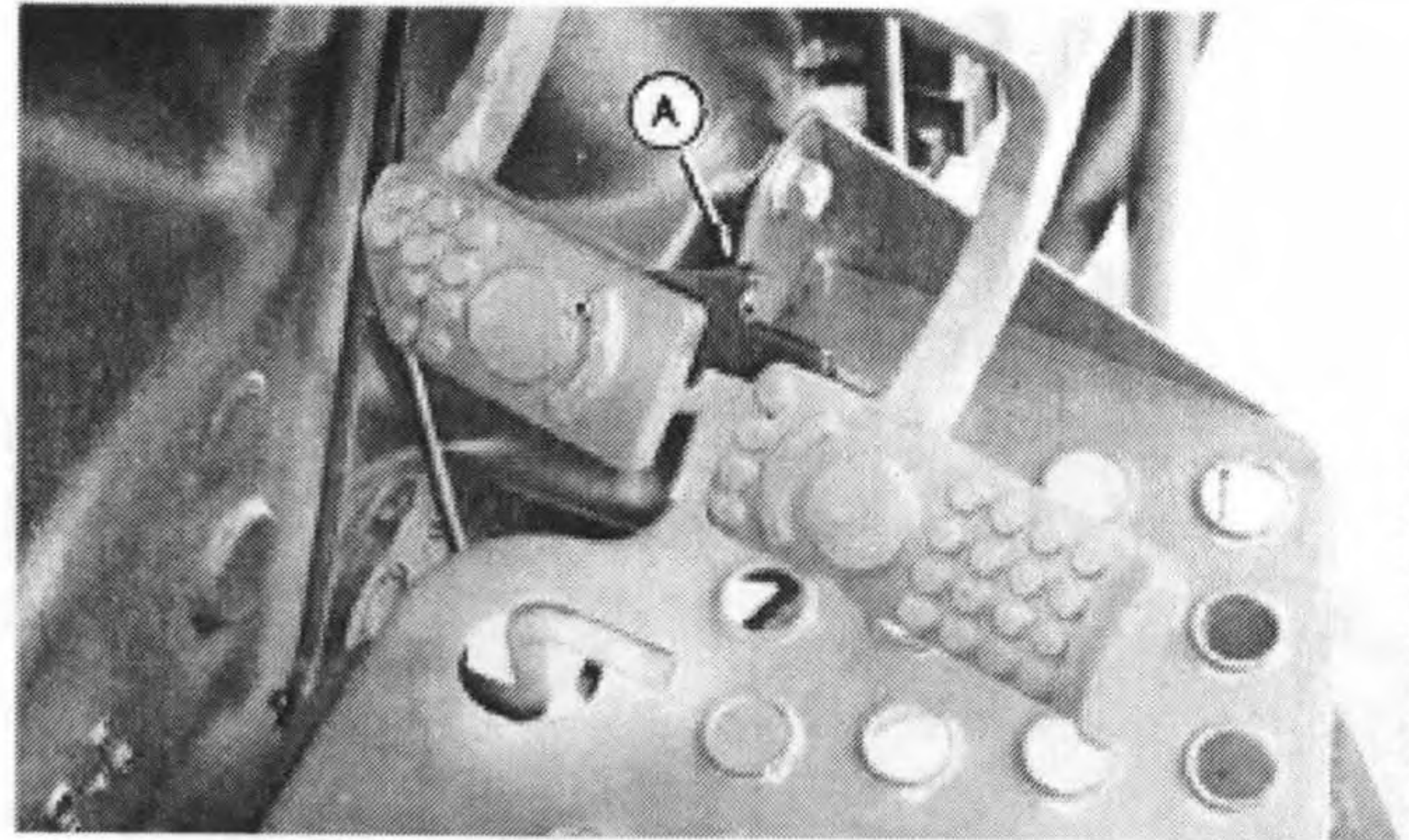


CAUTION: Before operating tractor on a road, lock brake pedals together. Use brake lightly and cautiously at transport speeds.

1. Couple brake pedals together using brake locking bar (A). Avoid hard applications of brakes. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes. (Consult implement operator's manual for recommended transport speeds).

Use additional caution when transporting towed loads under adverse surface conditions and when turning or braking on inclines. Be sure wheel tread is adjusted wide to provide maximum stability.

IMPORTANT: To prevent unnecessary wear, never ride the brakes by resting a foot on the pedals.

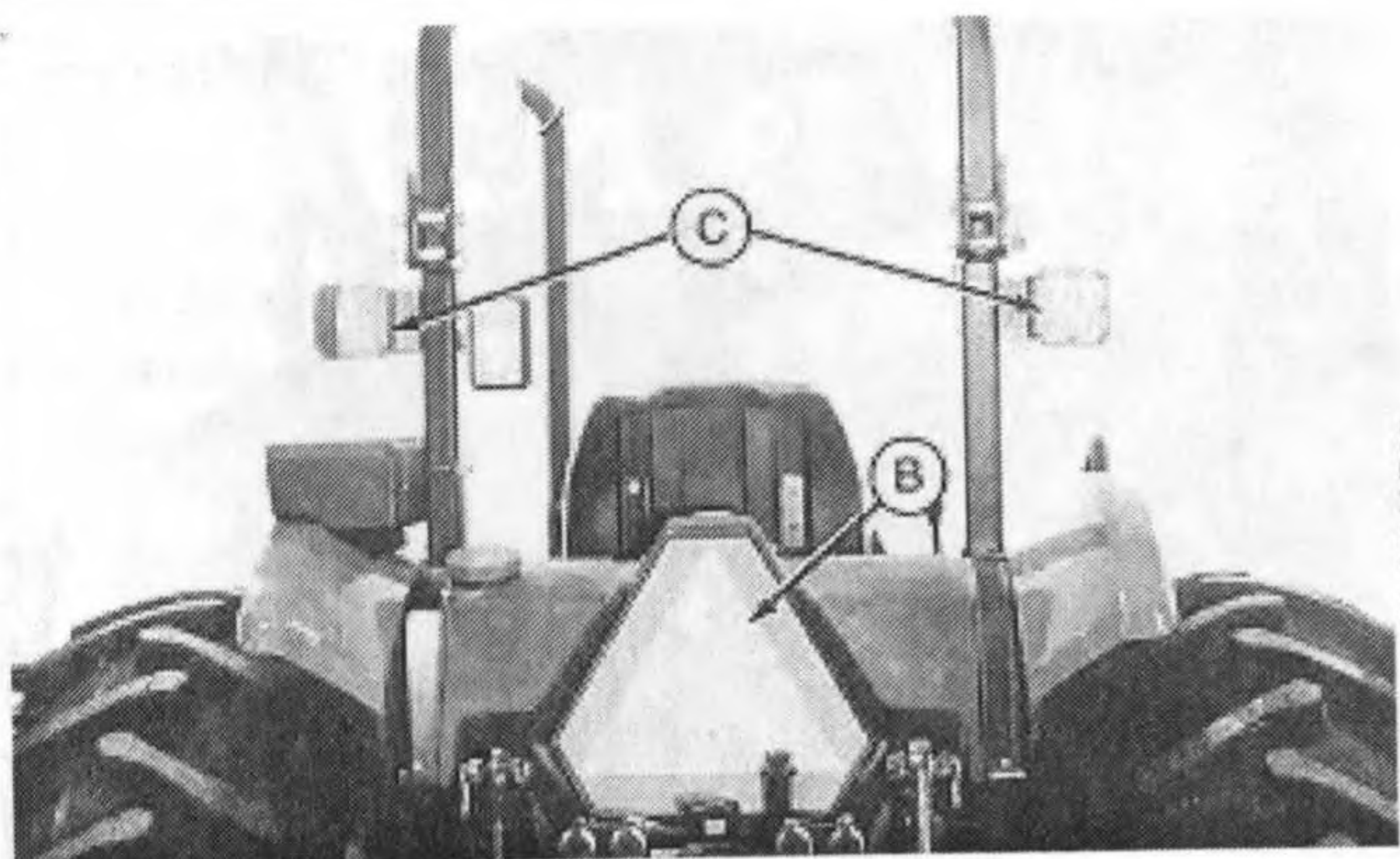


A—Brake Locking Bar

M46378 -UN-31JAN92

Continued on next page

LV,5010DT,A -19-26MAY99-1/2



M46379A -UN-09MAR95

Open Station Tractor

2. Check local laws and regulations for lighting requirements. Be sure Slow Moving Vehicle (SMV) emblem (B) and warning lamps (C) are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and warning lamps on equipment. (See your John Deere dealer.)

A seven-terminal outlet at rear of tractor supplies power to warning lamps on towed or rear mounted equipment. (See description of outlet in Lights section.)

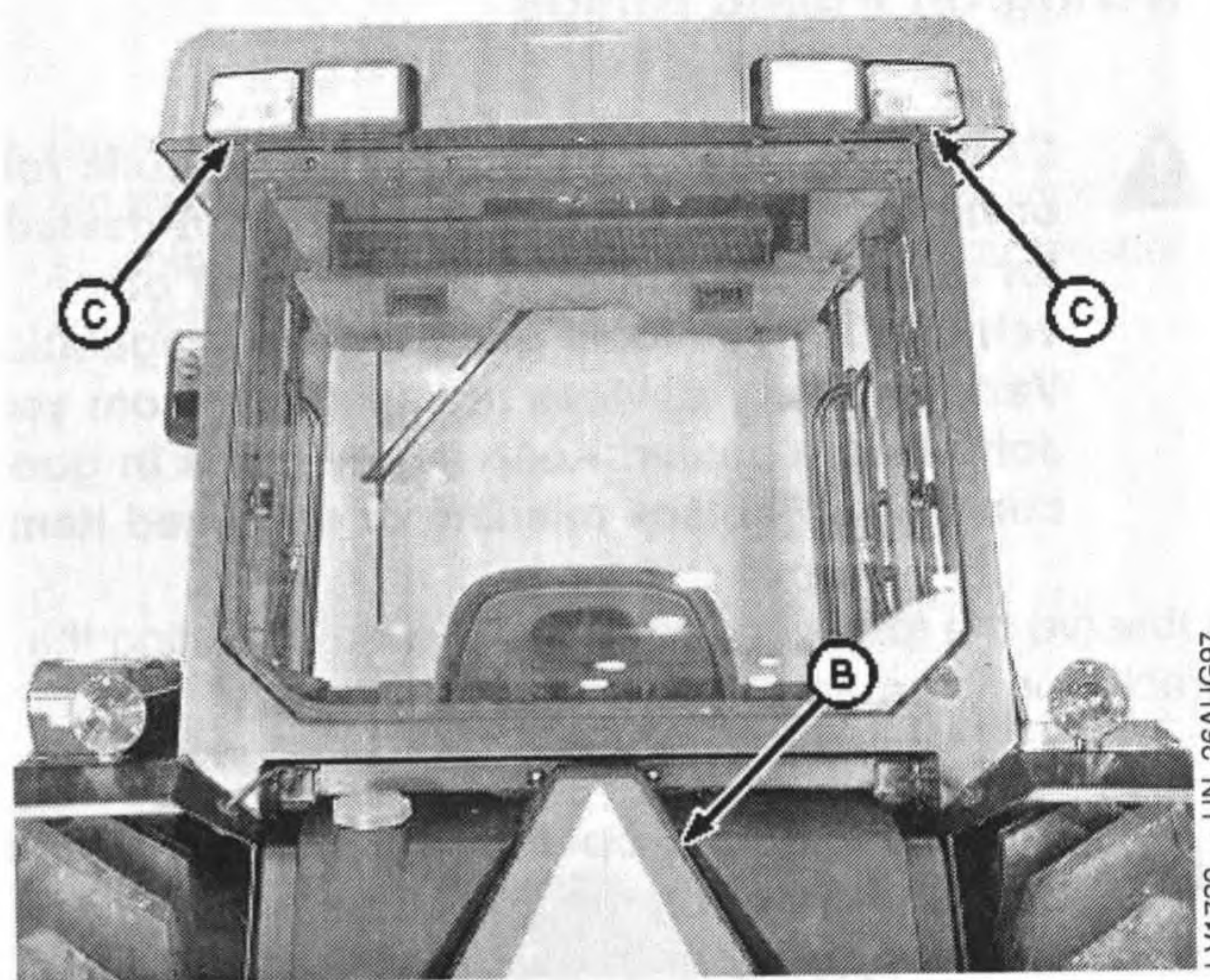
3. Turn light switch to position (D) .

Always turn light switch to dim lights position (A) when meeting another vehicle. Never use flood lamps or any lights which could blind or confuse other drivers.

4. Use turn signal when turning. Be sure to return lever (E) to center position after turning.

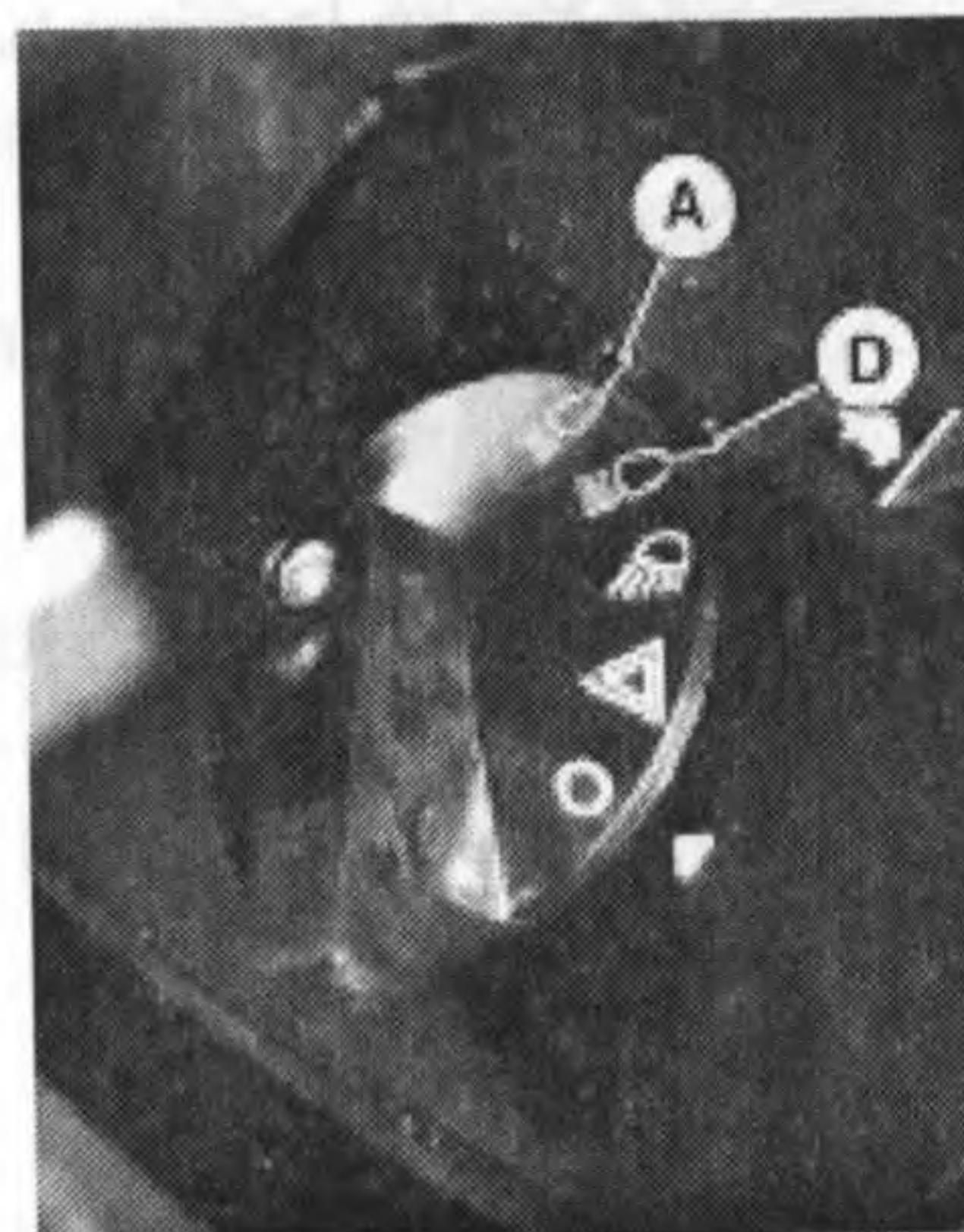
5. Drive slowly enough to maintain safe control at all times. Before descending a hill, shift to a gear low enough to control speed without using brakes. Slow down for rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.

6. To reduce tire wear, be sure to disengage front-wheel drive (if equipped).

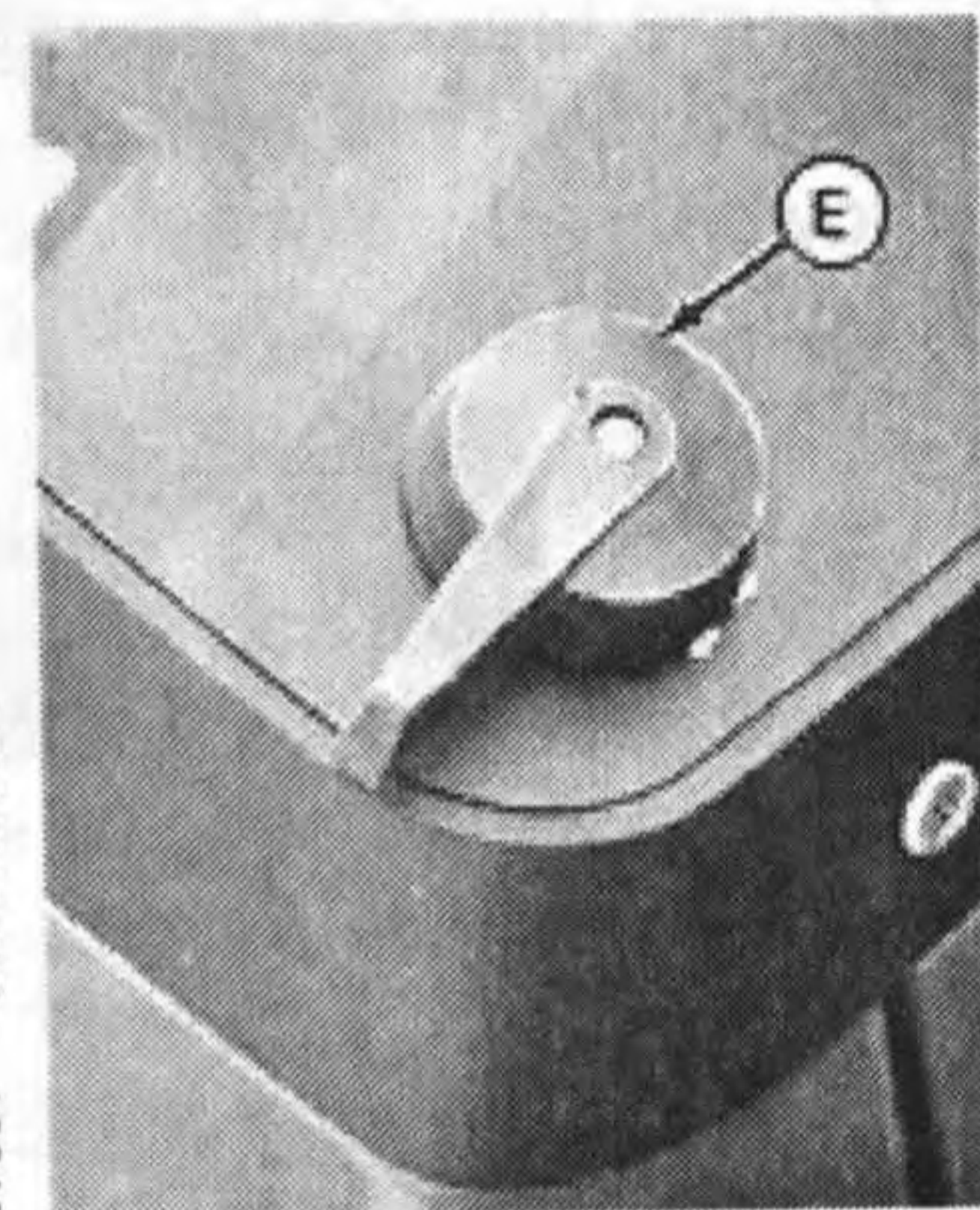


LV1732 -UN-26AUG97

Cab Tractor



LV881 -UN-22JAN96



M46380 -UN-31JAN92

- A—Dim Headlight Switch Position
- B—SMV Emblem
- C—Warning Lamps
- D—Bright Headlight Switch Position
- E—Turn Signal Lever

LV,5010DT,A -19-26MAY99-2/2

Use Caution on Hillsides

Operate only with the Roll-Over Protective Structure (ROPS) in the UP or extended position whenever possible. Always use your seat belt when the ROPS is in the UP or extended position to minimize chance of injury from an overturn accident.

Avoid holes, ditches, and obstructions which may cause the tractor to tip, especially on hillsides. Avoid sharp, uphill turns.

Never drive near the edge of a gully or steep embankment-it might cave in.

Driving forward out of a ditch or mired condition or up a steep slope could cause tractor to tip over rearward. Back out of these situations if possible.

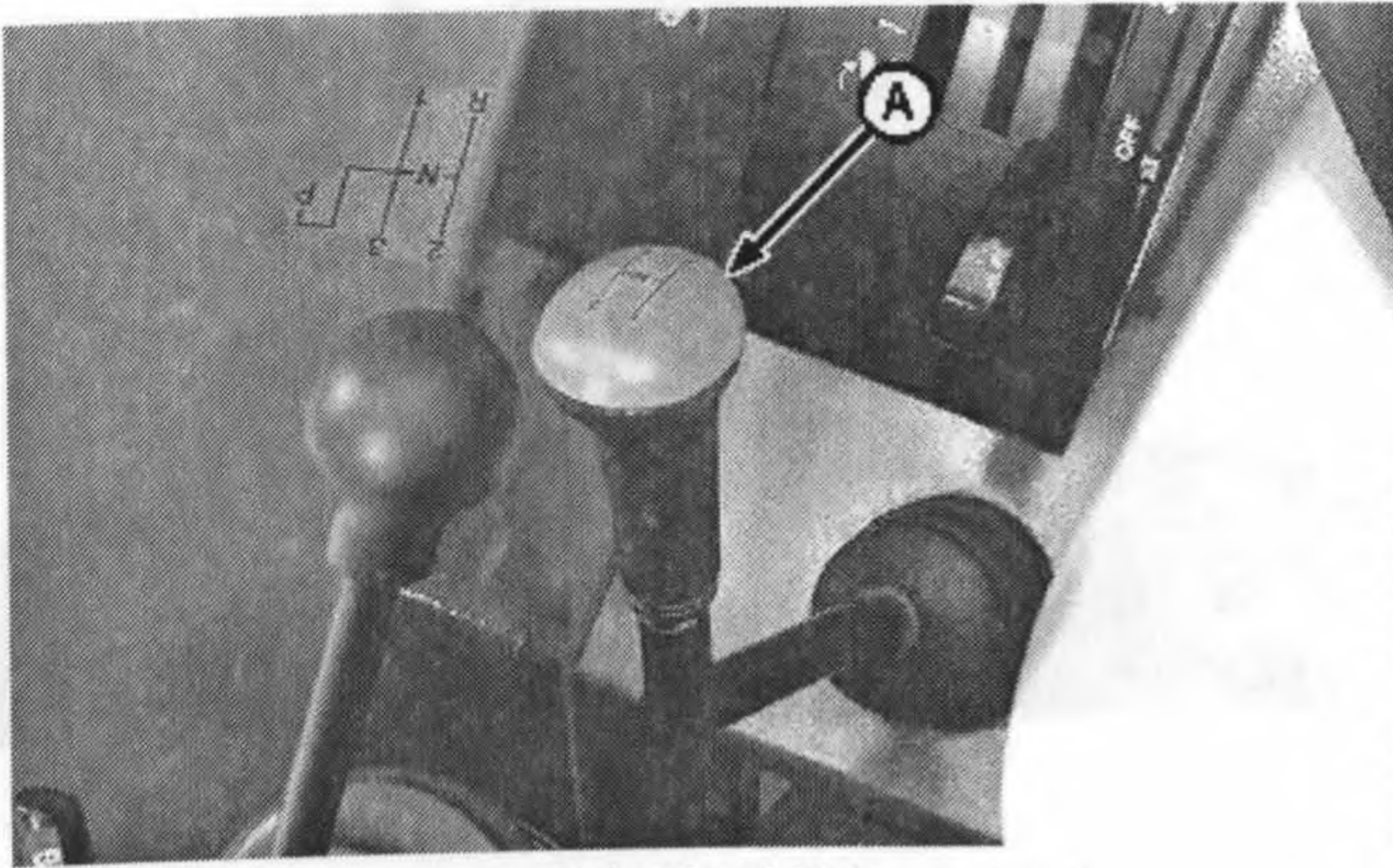
While mechanical front wheel drive greatly increases traction, it does not increase the stability of the tractor. With mechanical front wheel drive engaged, the tractor can climb steeper slopes, but it does not become more stable. When this option is used, extra caution is needed on slopes. Compared to 2-wheel drive, a front-wheel drive tractor maintains traction on steeper slopes, increasing the possibility of a tip over.

Danger of overturn increases greatly with narrow tread setting, at high speed.

Hitch towed loads only to drawbar. When using a chain, take up the slack slowly.

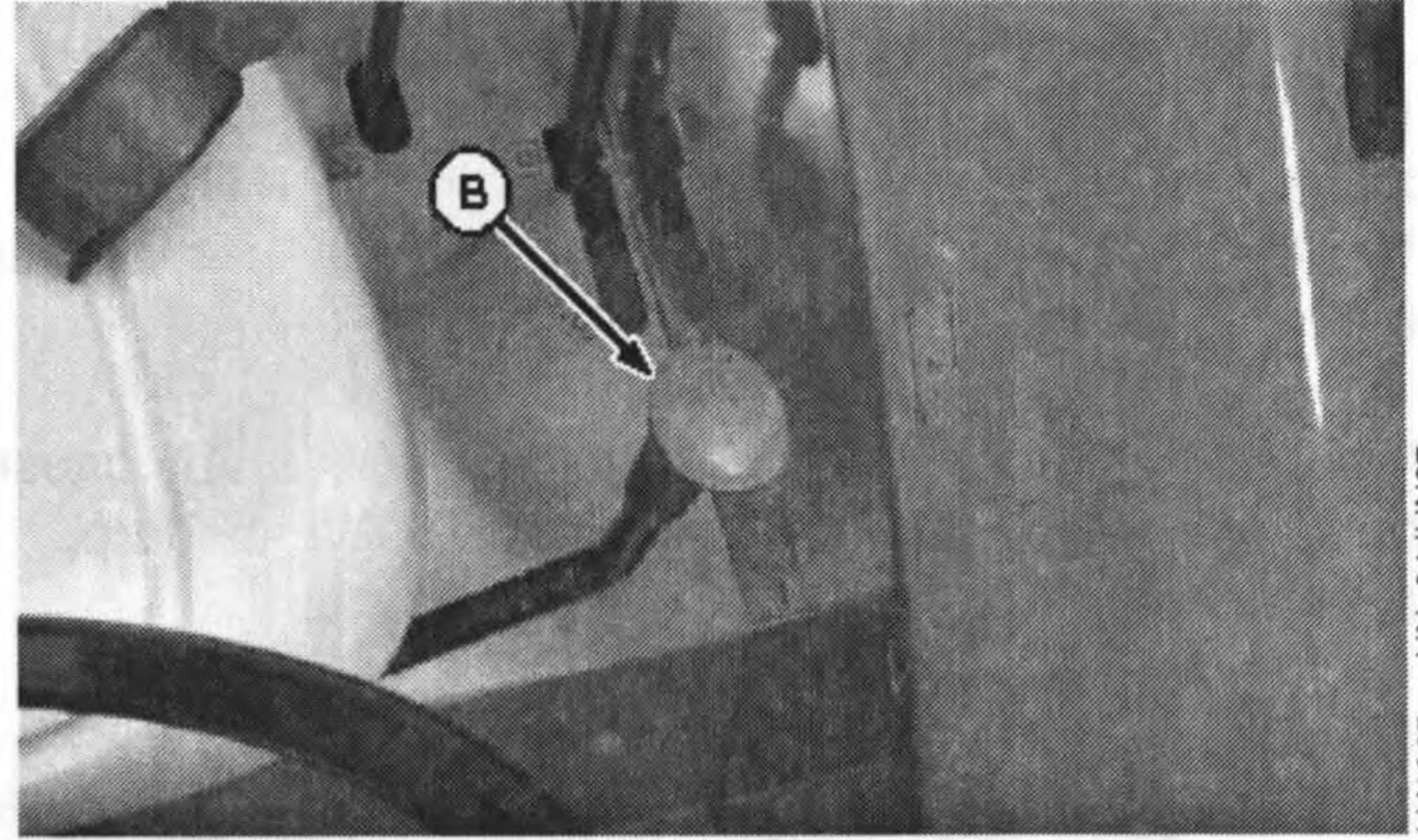
LV,5400NDT,A1 --19-22JUL94-1/1

Operating CollarShift or SyncShuttle™ Transmissions



Right-Hand Side

A—Gear Shift Lever



Left-Hand Side

B—Speed Range Lever

Gear shift lever (A) provides three forward travel speeds and one reverse.

Shift lever (B) provides three speed ranges, A, B, and C.

Slow speed gearing (Creeper) is available as an option, providing for a fourth speed range. See Creeper Gear Operation in this section for further information.

Using range and gear shift levers in different combinations, nine forward speeds can be obtained. Reverse can be obtained in all speed ranges.

Gear shift must be in park or neutral for the engine to be started.

SyncShuttle is a trademark of Deere & Company.

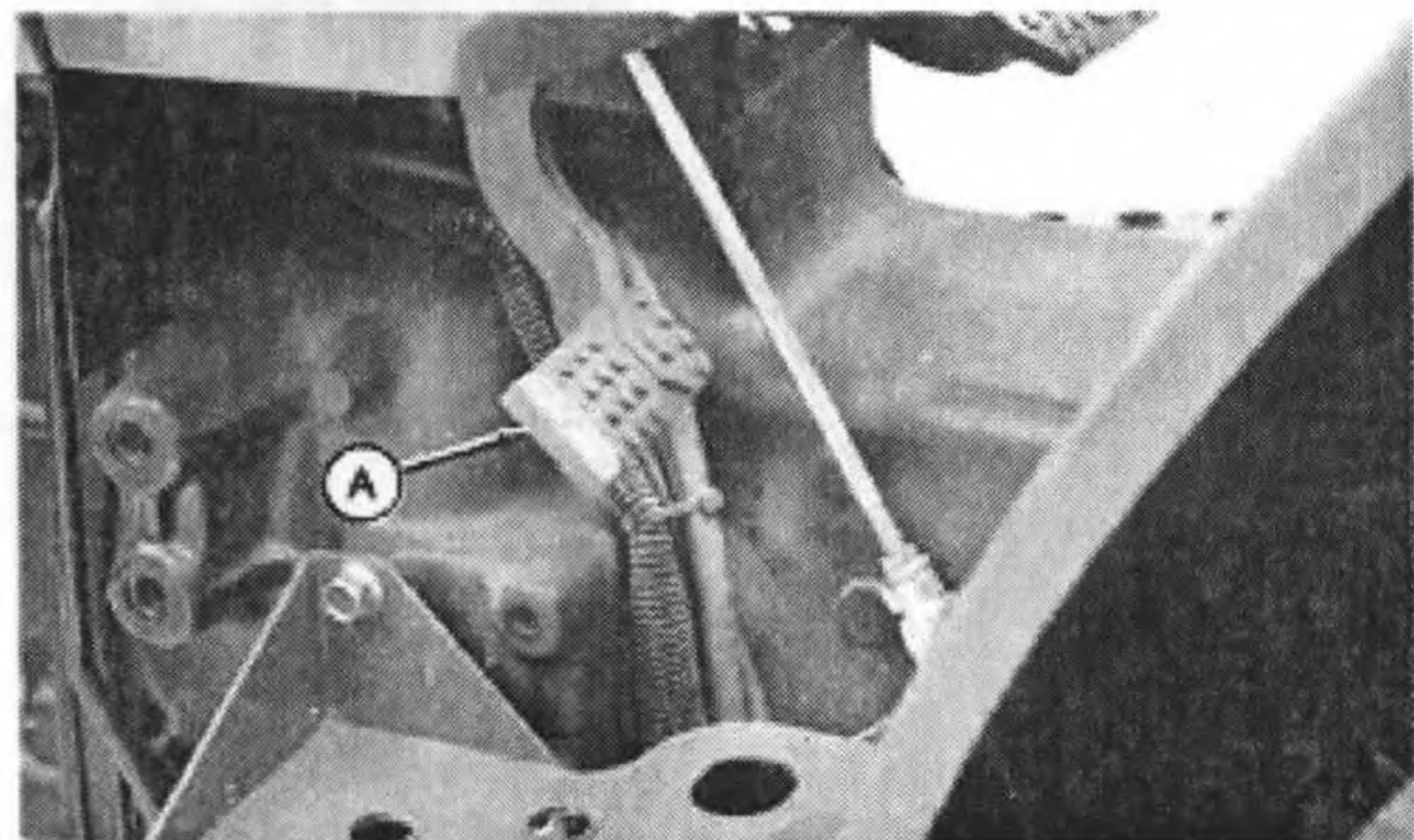
LV,5010DT,B -19-04SEP97-1/1

Shifting Transmission—CollarShift

IMPORTANT: To prevent transmission damage, do not shift on-the-go. To prevent unnecessary wear, never “ride” the clutch by resting a foot on the pedal.

Depress clutch pedal (A) and stop tractor before shifting either range shift lever or gear shift lever. Release clutch pedal gradually to take up load smoothly.

A—Clutch Pedal



MX,DTIP,CA2 -19-24JUL95-1/1

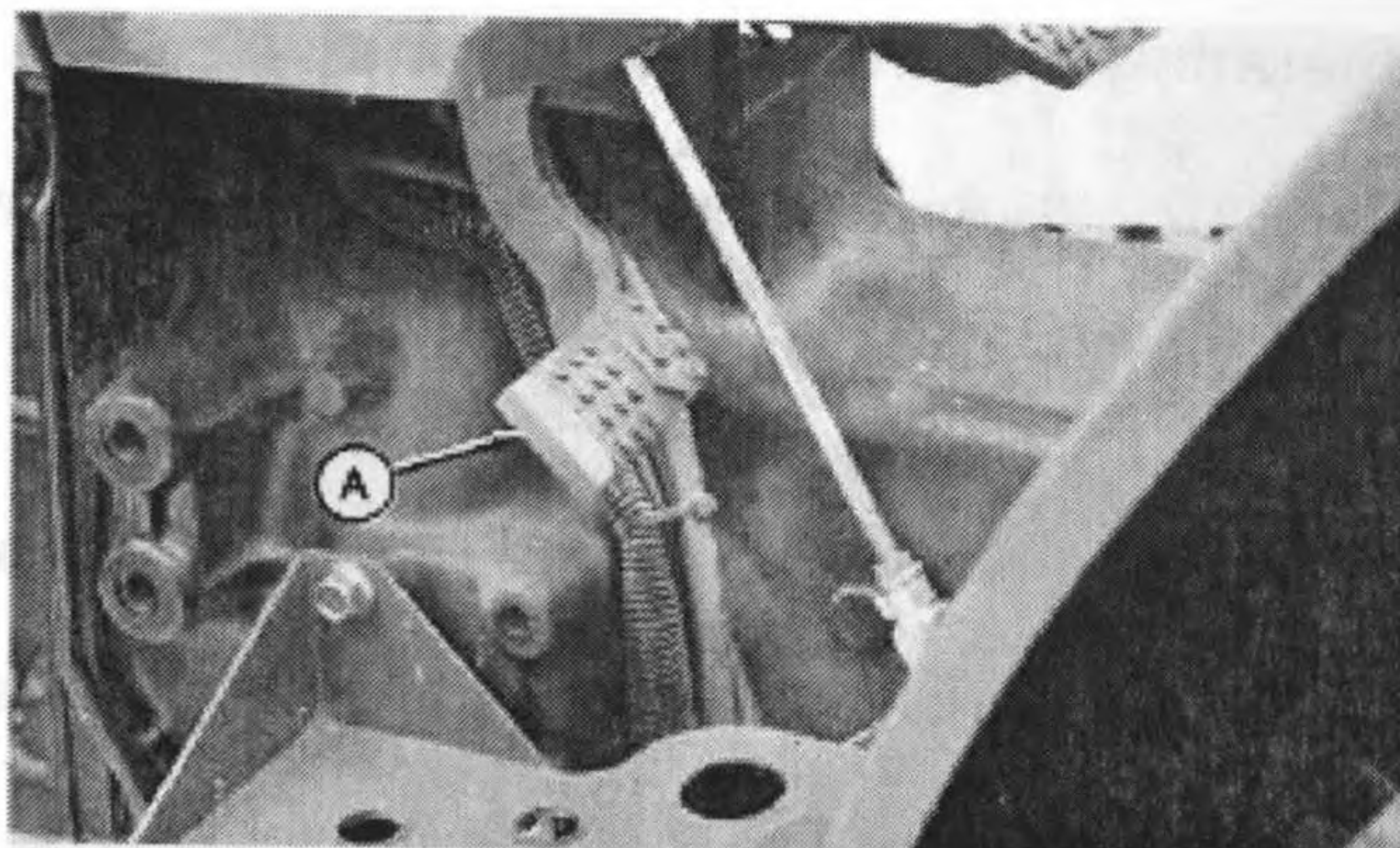
Shifting Transmission—SyncShuttle™

IMPORTANT: To prevent unnecessary wear, never “ride” the clutch by resting a foot on the pedal.

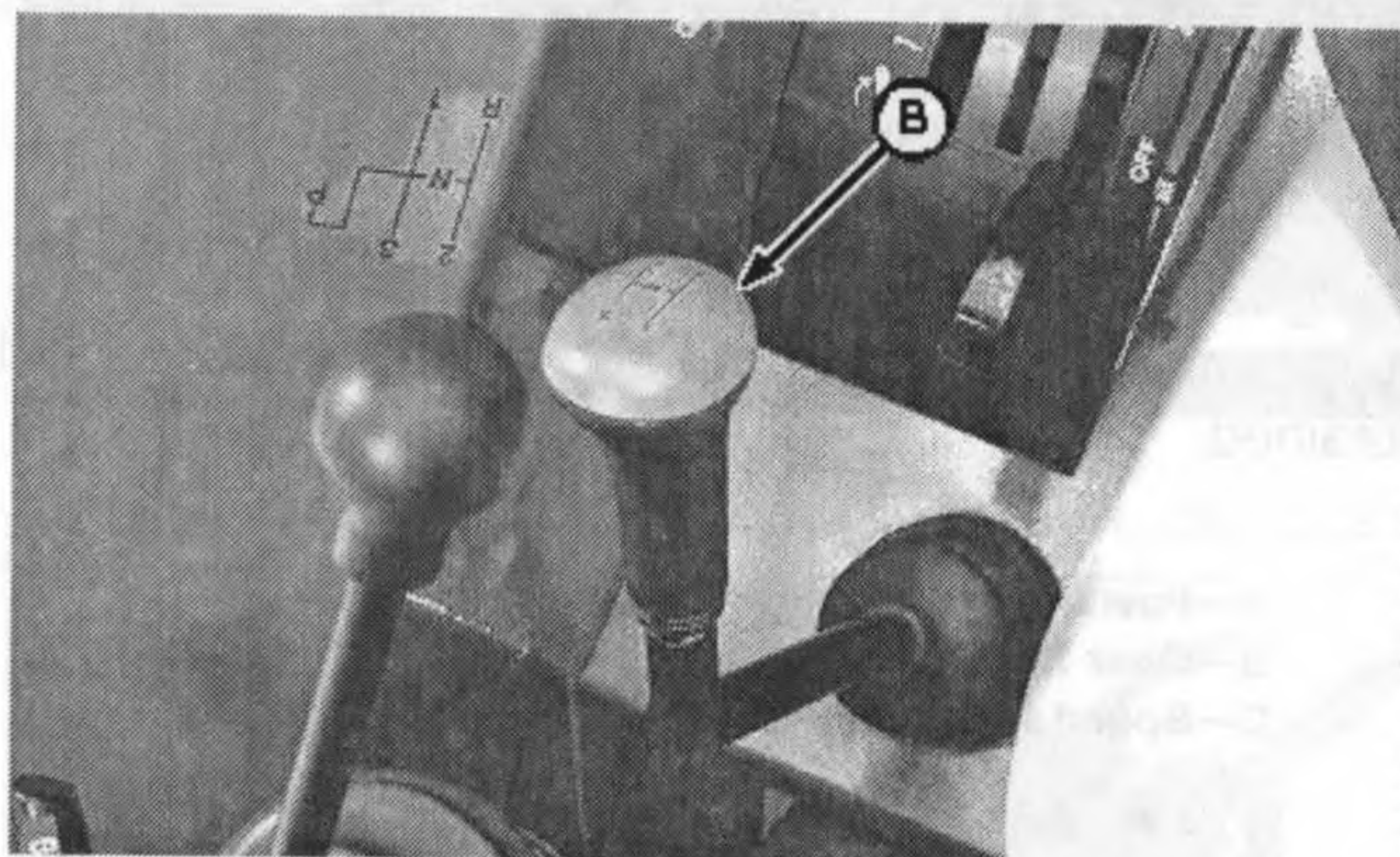
Depress clutch pedal (A) and stop tractor before shifting the range shift lever (C).

Depress clutch pedal (A) before shifting the gear shift lever (B). Gear shifts (1, 2, 3) and direction shifts (forward, reverse) can be made on-the-go. Release clutch pedal gradually to take up load smoothly.

- A—Clutch Pedal
- B—Gear Shift Lever
- C—Range Shift Lever

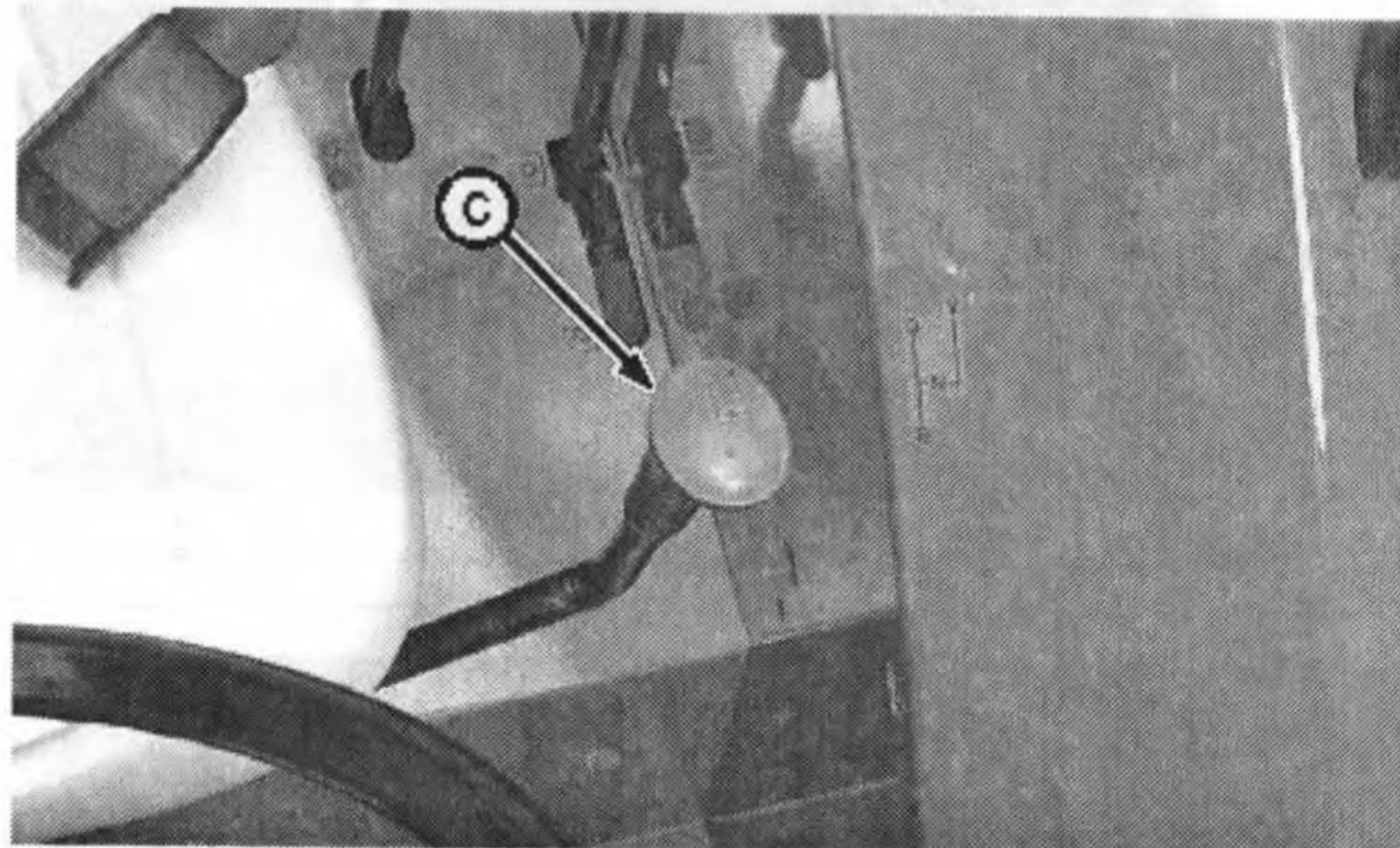


M46978 -UN-31JAN92



LV1734 -UN-30MAY97

Right-Hand Side



LV1736 -UN-30MAY97

Left-Hand Side

SyncShuttle is a trademark of Deere & Company.

LV.5010DT,C -19-29AUG97-1/1

Operating PowrReverser™ Transmission

Forward-Neutral-Reverse lever (A) is used to select travel direction (forward or reverse) and to place tractor into park. F-N-R lever must be in park or neutral for engine to start.

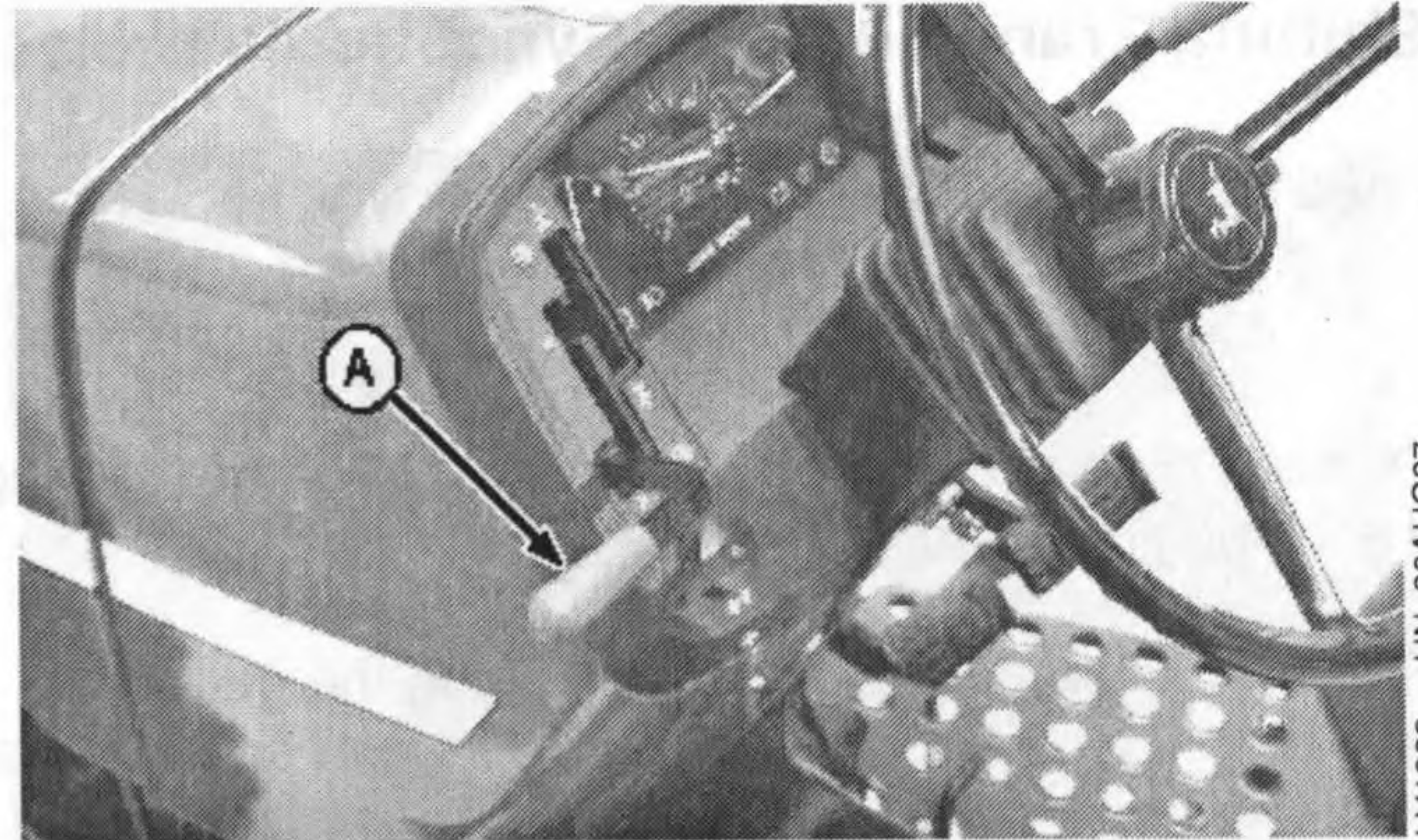
Gear shift lever (B) provides four forward travel speeds.

Speed range shift lever (C) provides three speed ranges, A, B, and C.

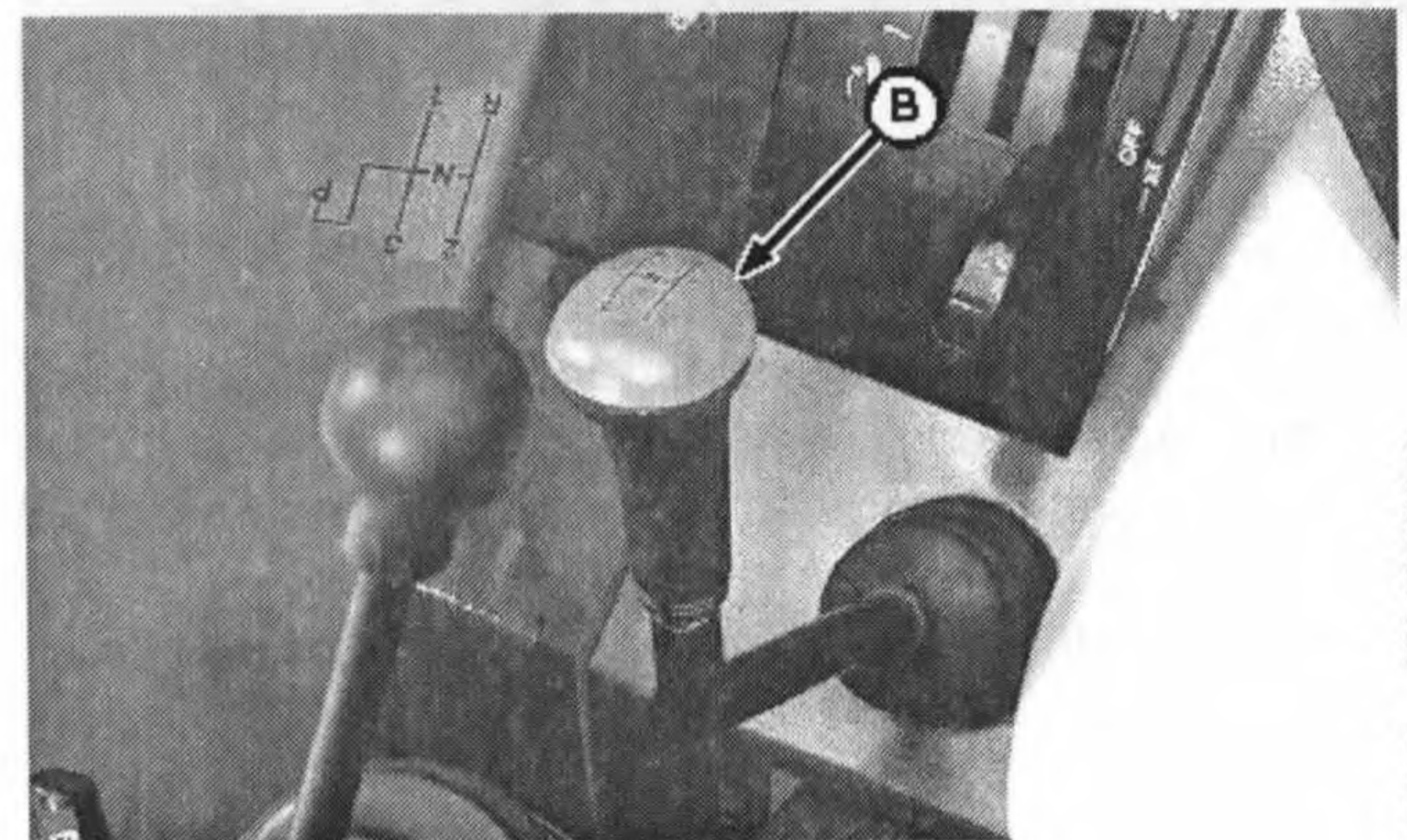
Slow speed gearing (Creeper) is available as an option, providing for a fourth speed range. See Creeper Gear Operation in this section for further information.

Using range and gear shift levers in different combinations, twelve forward and reverse speeds can be obtained.

- A—Forward-Neutral-Reverse Lever
- B—Gear Shift Lever
- C—Speed Range Shift Lever

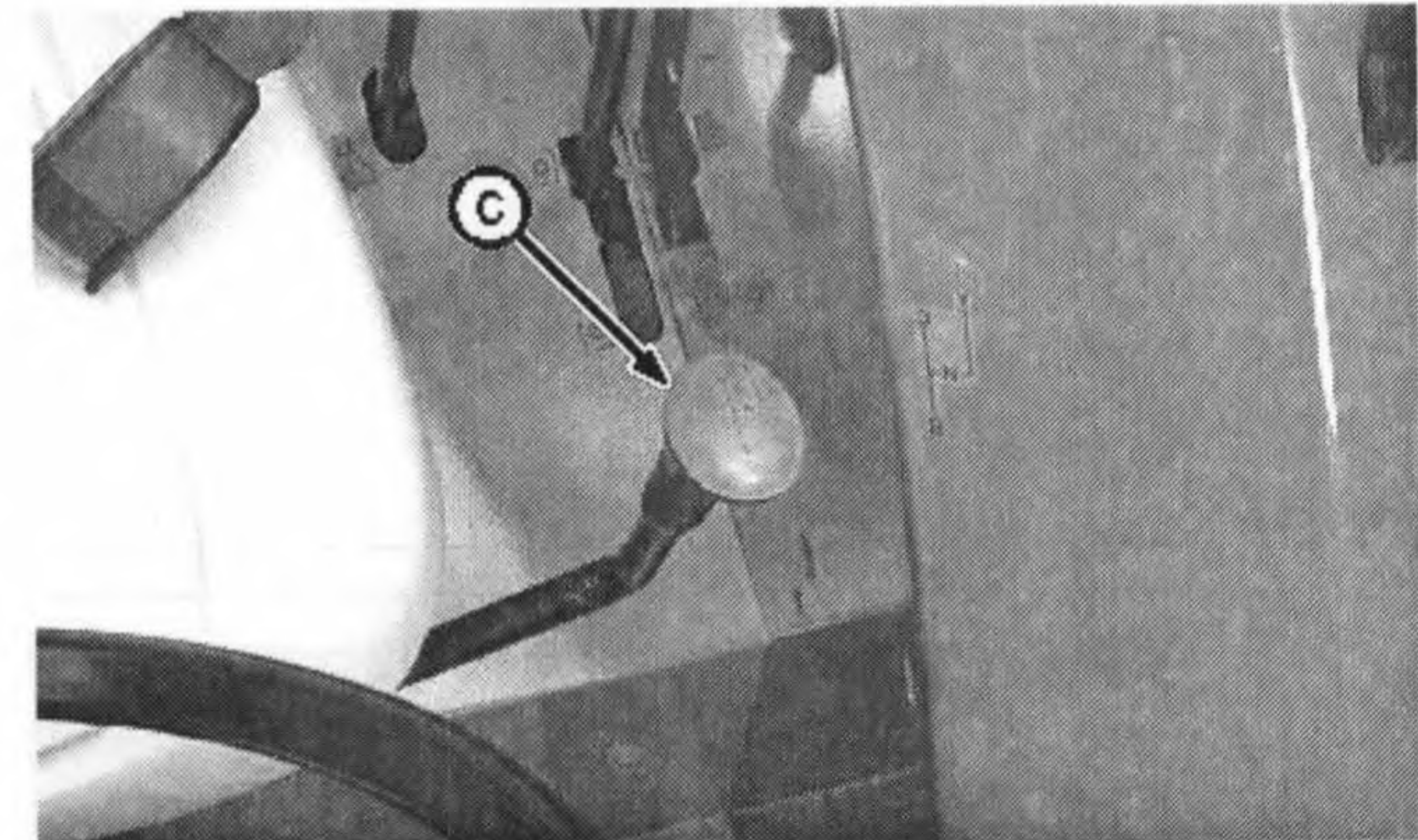


LV1983 -UN-26AUG97



LV1734 -UN-30MAY97

Right-Hand Side



LV1736 -UN-30MAY97

Left-Hand Side

PowrReverser is a trademark of Deere & Company.

LV,5010DT,D -19-02JUN99-1/1

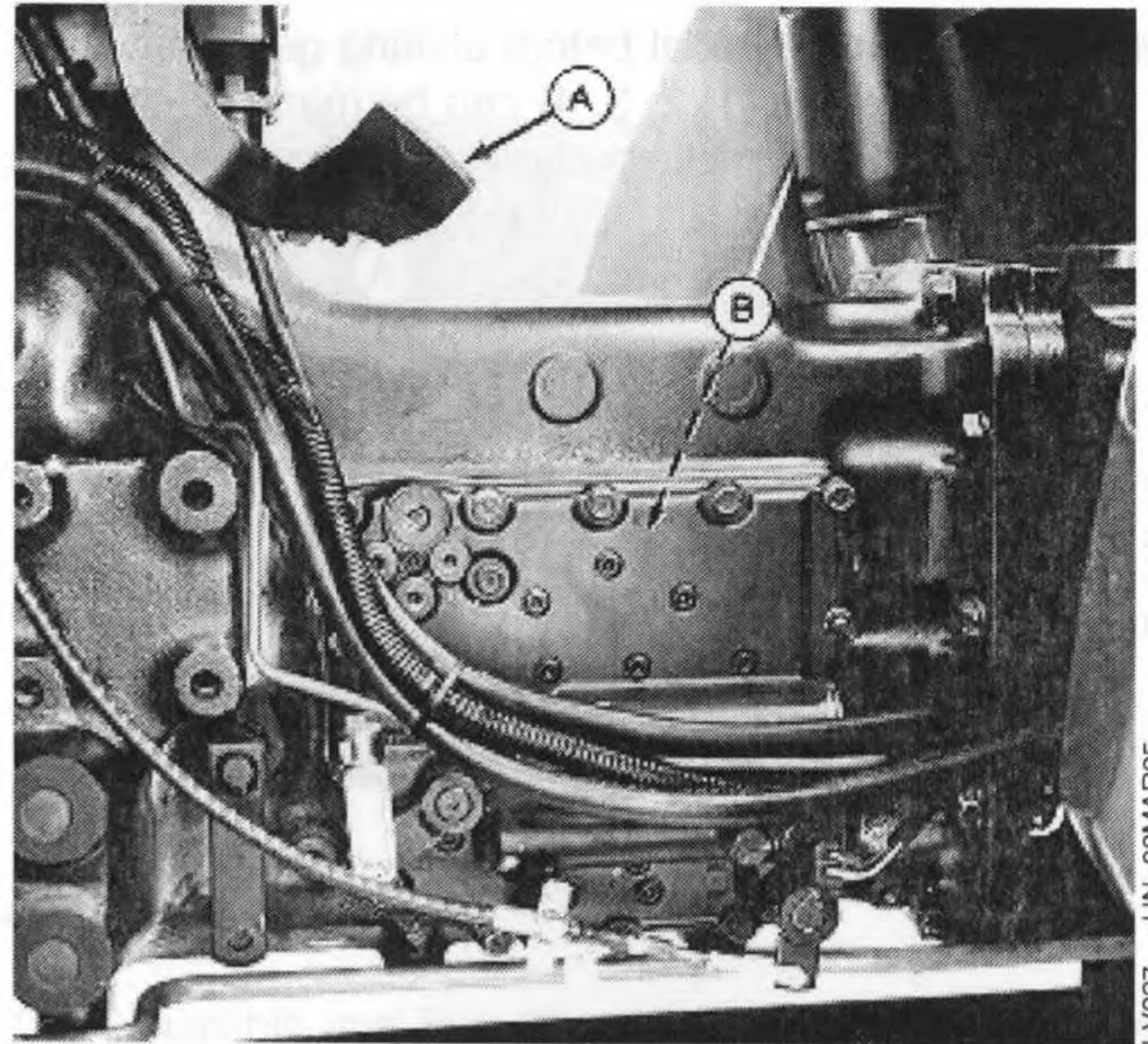
Shifting PowrReverser™ Transmission

IMPORTANT: To prevent unnecessary wear, never “ride” the clutch by resting a foot on the pedal.

1. At tractor start-up, cycle clutch pedal (A) one time to disengage the engagement override valve (B). Tractor will not move until clutch pedal is cycled and engagement override valve is disengaged.

A—Clutch Pedal

B—Engagement Override Valve (Internal)



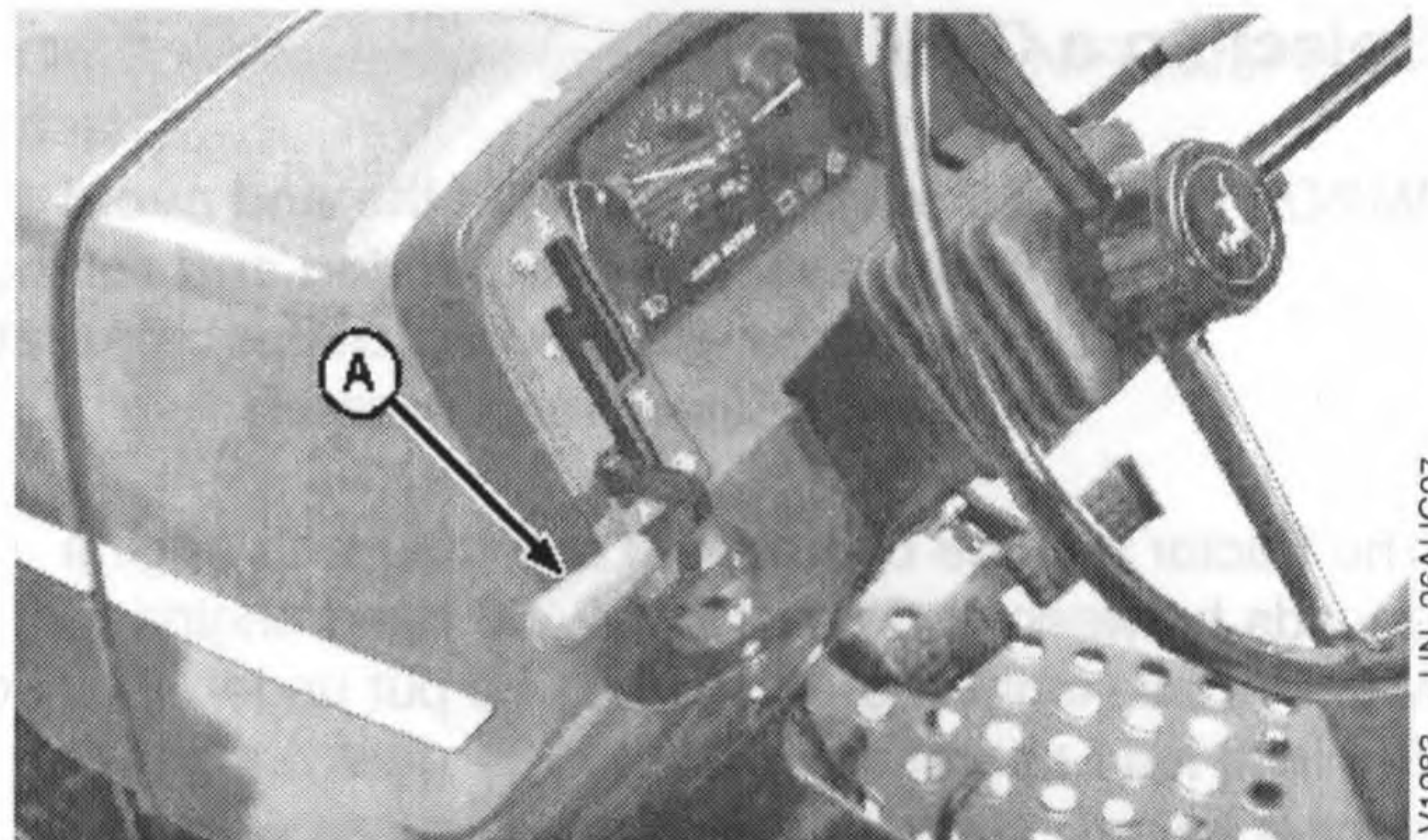
LV837 -UN-08MAR95

PowrReverser is a trademark of Deere & Company.

LV,5010DT,E -19-26MAY99-1/4

2. Use F-N-R lever (A) to select travel direction. Forward and reverse shifts can be made without depressing clutch pedal.

A—Forward-Neutral-Reverse (F-N-R) Lever

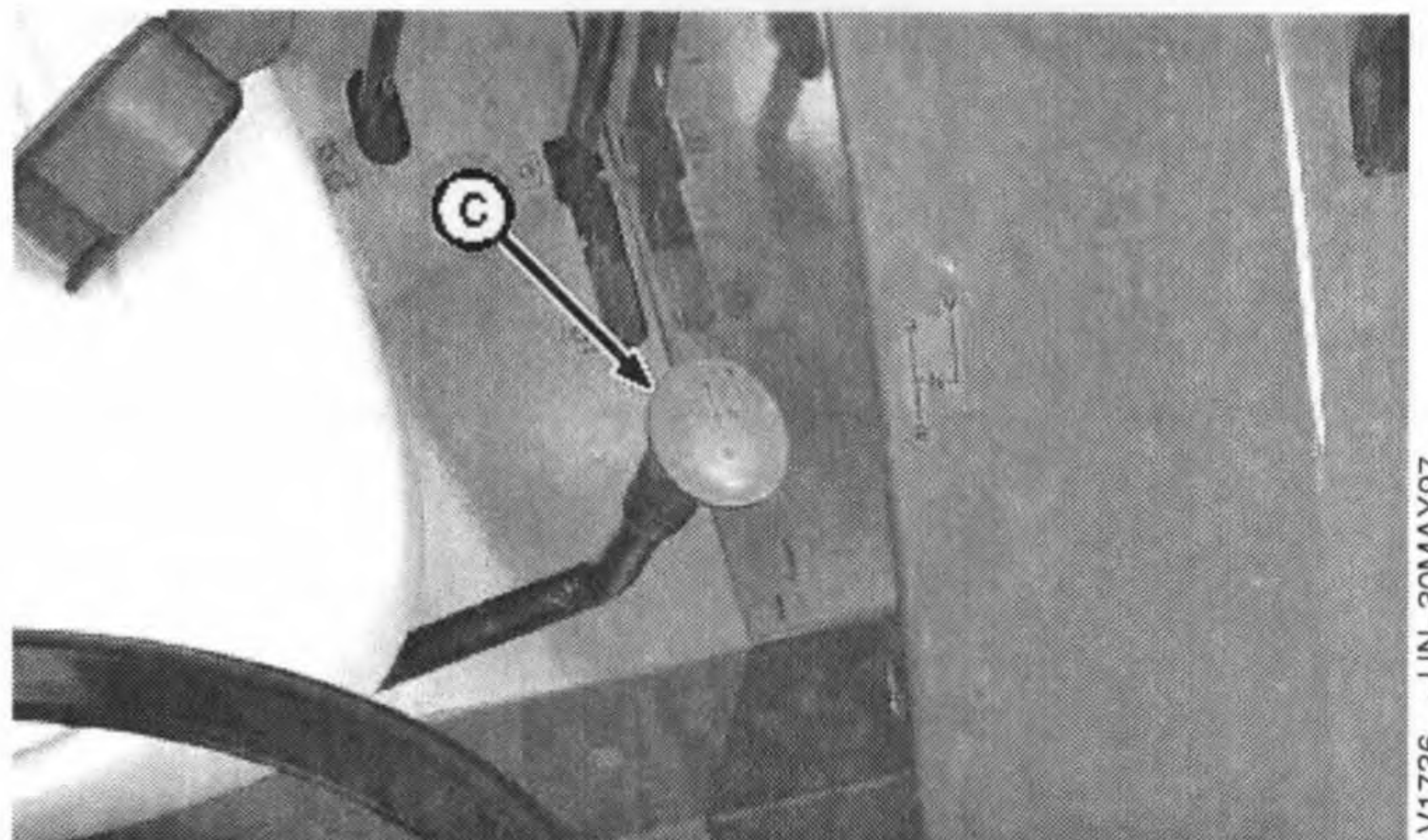


LV1983 -UN-26AUG97

LV,5010DT,E -19-26MAY99-2/4

3. Depress clutch pedal and stop tractor before shifting range shift lever (C).

C—Range Shift Lever



LV1736 -UN-30MAY97

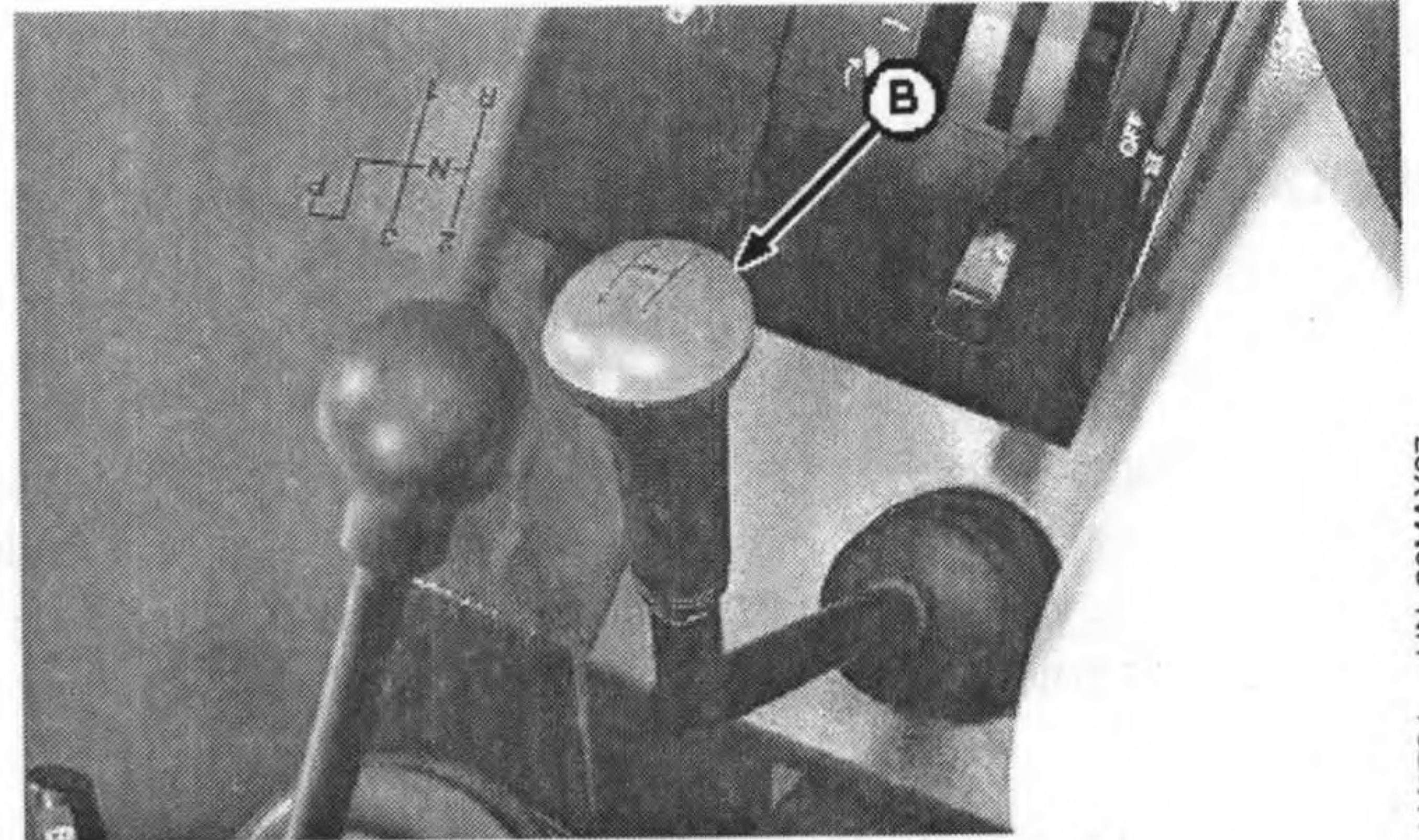
Left-Hand Side

Continued on next page

LV,5010DT,E -19-26MAY99-3/4

4. Depress clutch pedal before shifting gear shift lever (B). Gear shifts (1, 2, 3, 4) can be made on-the-go. Release clutch pedal gradually to take up load smoothly.

B—Gear Shift Lever



Right-Hand Side

LV,5010DT,E -19-26MAY99-4/4

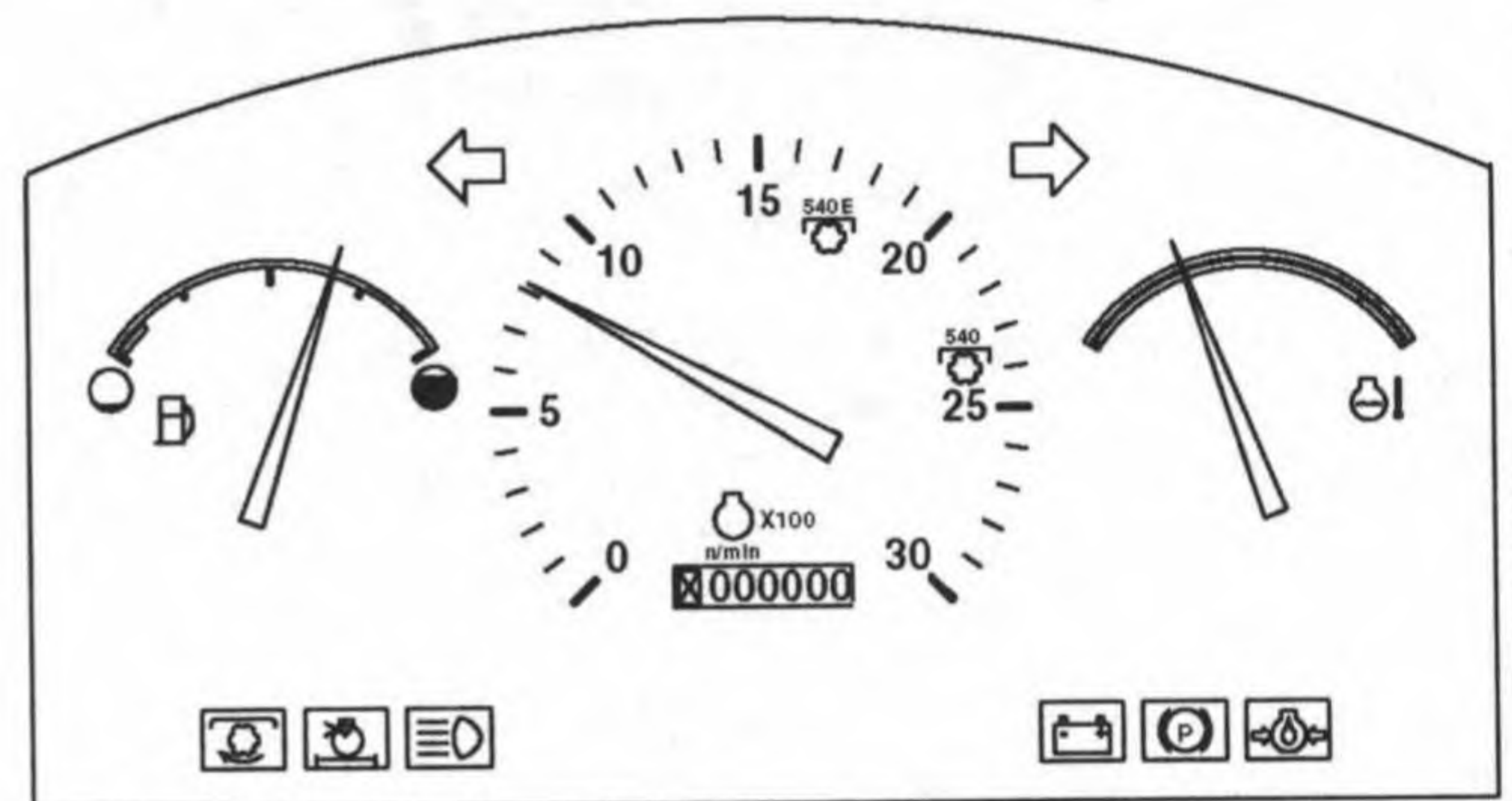
LV1734 -UN-30MAY97

Selecting a Gear

IMPORTANT: To extend drive train life and avoid excessive soil compaction and rolling resistance when using ballast, operate one gear lower than normal.

The tractor may be operated in any gear with engine speeds between 1600 rpm and 2400 rated engine rpm. Within these limits the engine can be put under full load. For light load operation, use a higher gear and lower engine speed. This saves fuel and reduces wear.

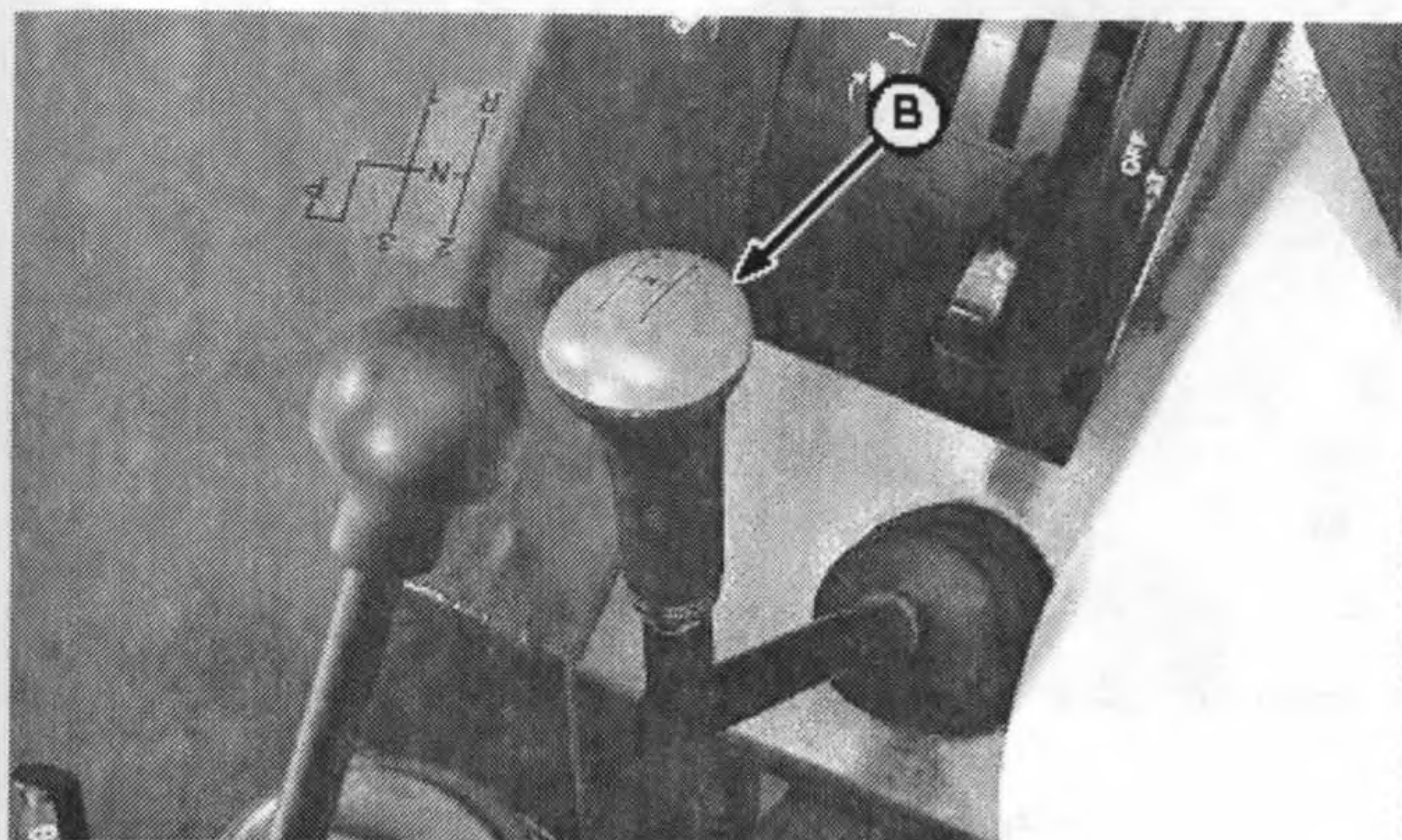
Ground Speed Estimates for different tire sizes are located in Specifications section.



LV,5010DT,F -19-03JUN97-1/1

LV1725 -UN-29MAY97

Creeper Gear Operation—If Equipped

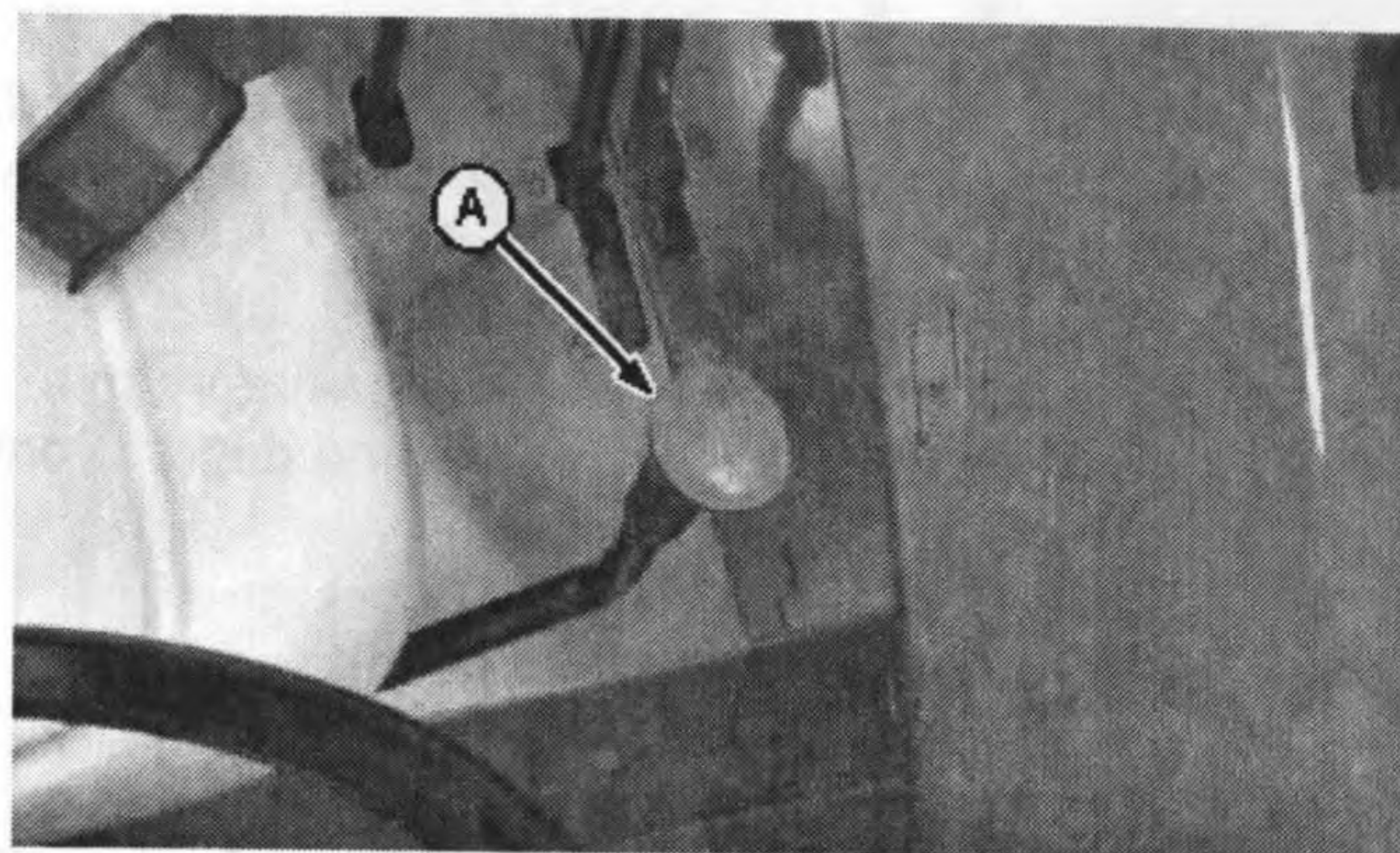


Right-Hand Side

A—Range Shift Lever

A slow-speed gearing, creeper gear, is available as an option and provides slowest speed range.

Placing the range shift lever (A) in the optional creeper range (designated with a “snail” logo on the lever or console) provides greatly reduced ground speeds for special operations.



Left-Hand Side

B—Gear Shift Lever

On CollarShift and SyncShuttle transmissions, the gear shift lever (B) provides forward and reverse speed gears to be selected in the creeper range.

On PowrReverser transmission, use F-N-R lever on dash.

LV,5010DT,G -19-26MAY99-1/1

Using Brakes



CAUTION: Before operating tractor on a road, lock pedals together (B). Use brake lightly and cautiously at transport speeds.

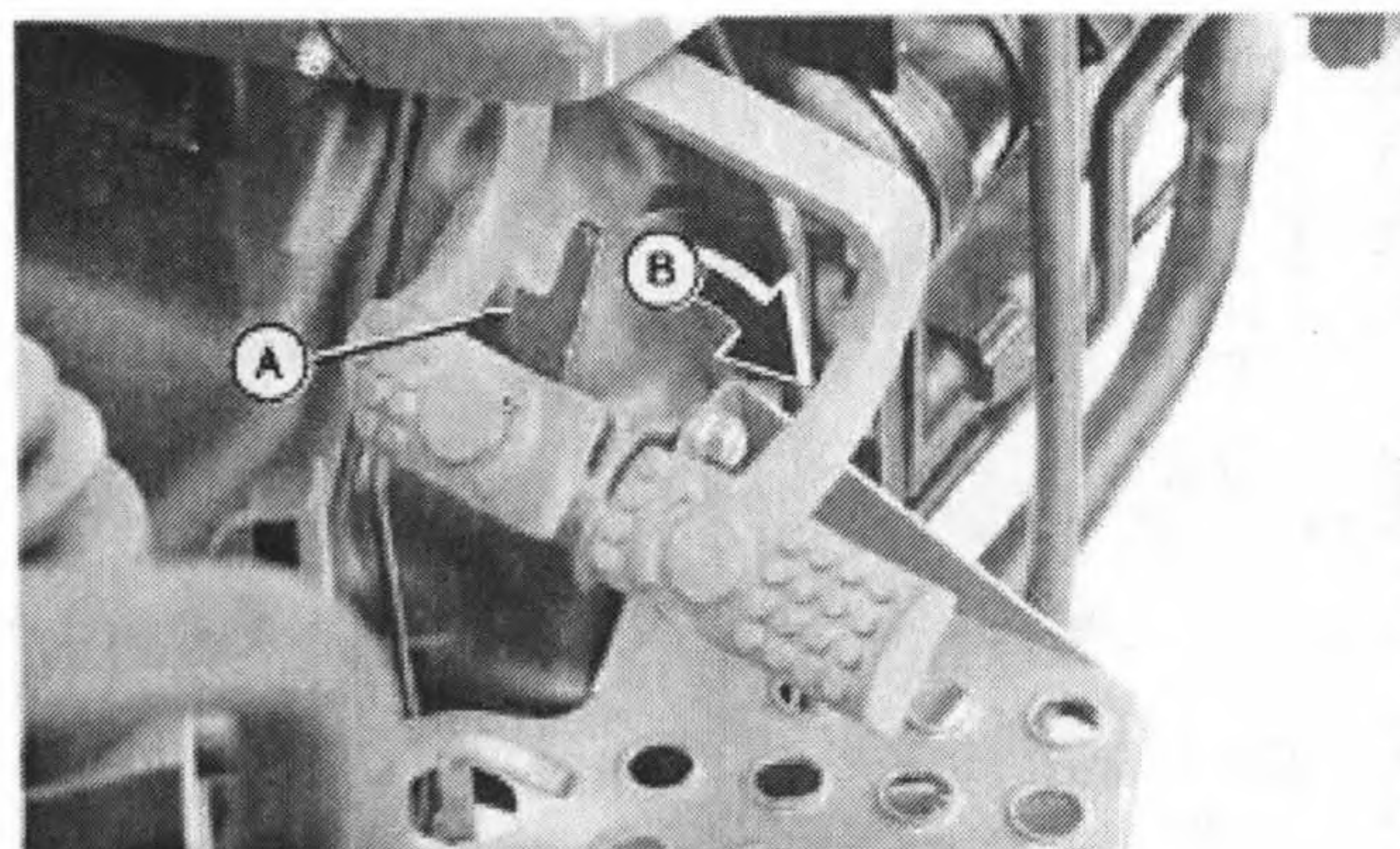
Use individual brakes to assist in making sharp turns. Disengage brake pedal locking bar (A) and depress only one brake pedal.

To stop tractor, depress both brake pedals.

IMPORTANT: To prevent unnecessary wear, never ride the brakes by resting a foot on the pedals.

Reduce speed if towed load weighs more than the tractor and is not equipped with brakes. Avoid hard braking applications. Consult implement operators manual for recommended transport speeds.

Use additional caution when transporting towed loads under adverse conditions, when turning or stopping on inclines.



A—Brake Pedal Locking Bar
B—Locked Brake Pedals

M46384 -JUN-31JAN92

MX,DTIP,D2 -19-18MAR92-1/1

Using Differential Lock

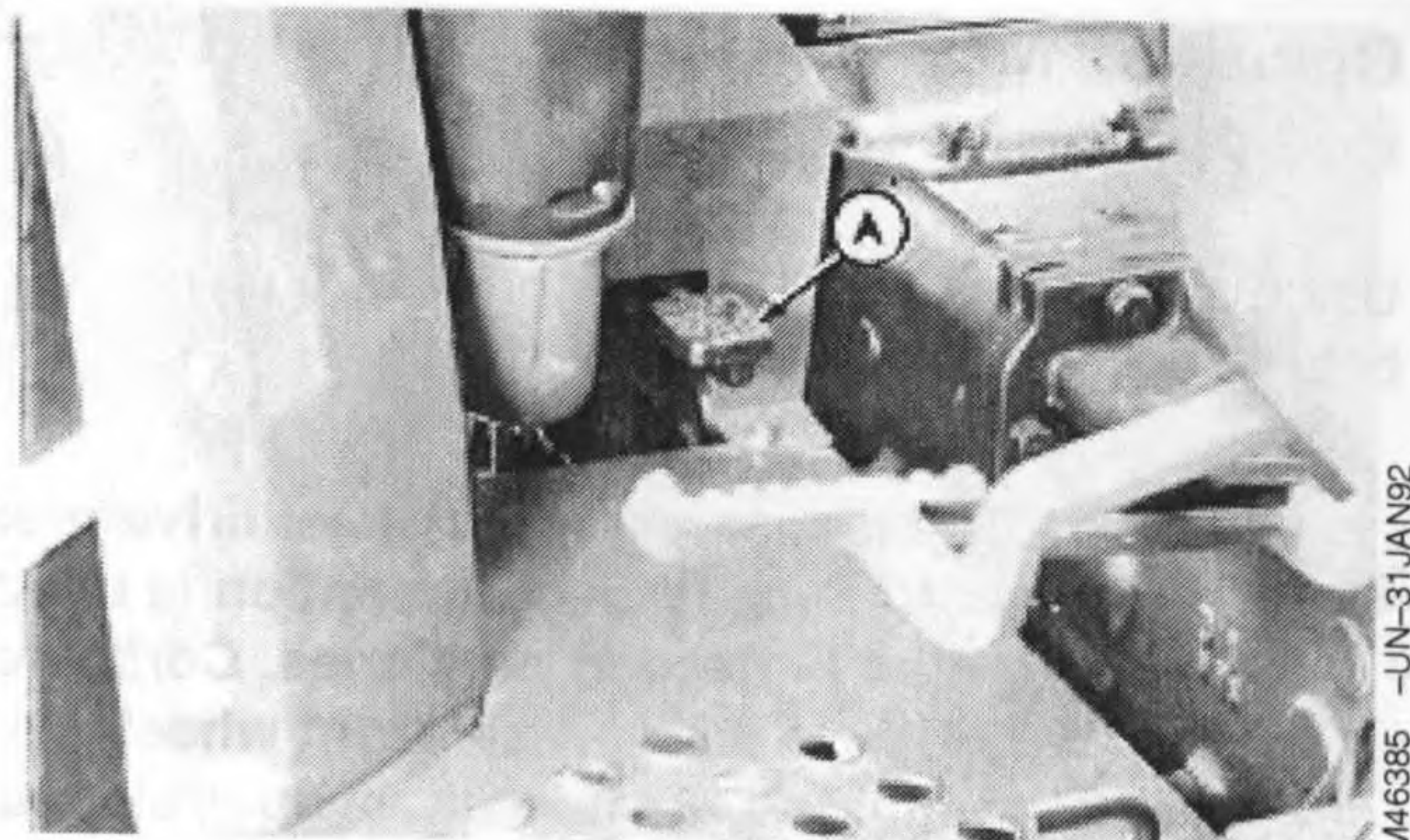
CAUTION: DO NOT operate tractor at high speed or attempt to turn with differential lock engaged.

IMPORTANT: To prevent damage to drive train, DO NOT engage differential lock when one wheel is spinning and the other is completely stopped.

When one wheel starts to lose traction, engage differential lock by depressing pedal (A) down.

Unequal traction will keep the lock engaged. When traction equalizes, lock will disengage itself by spring action. If lock does not disengage, depress one brake pedal and then the other.

If tires repeatedly slip, then get traction, then slip again, hold pedal in the engaged position.



A—Differential Lock Pedal

MX,DTIP,EA1 -19-21APR94-1/1

Operating Mechanical Front Wheel Drive—If Equipped

Use mechanical front wheel drive (MFWD) as required for better traction.



CAUTION: Mechanical front wheel drive greatly increases traction. When this option is used, extra caution is needed on slopes. Compared to 2-wheel drive, a mechanical front wheel drive tractor maintains traction on steeper slopes, increasing the possibility of a tip over.

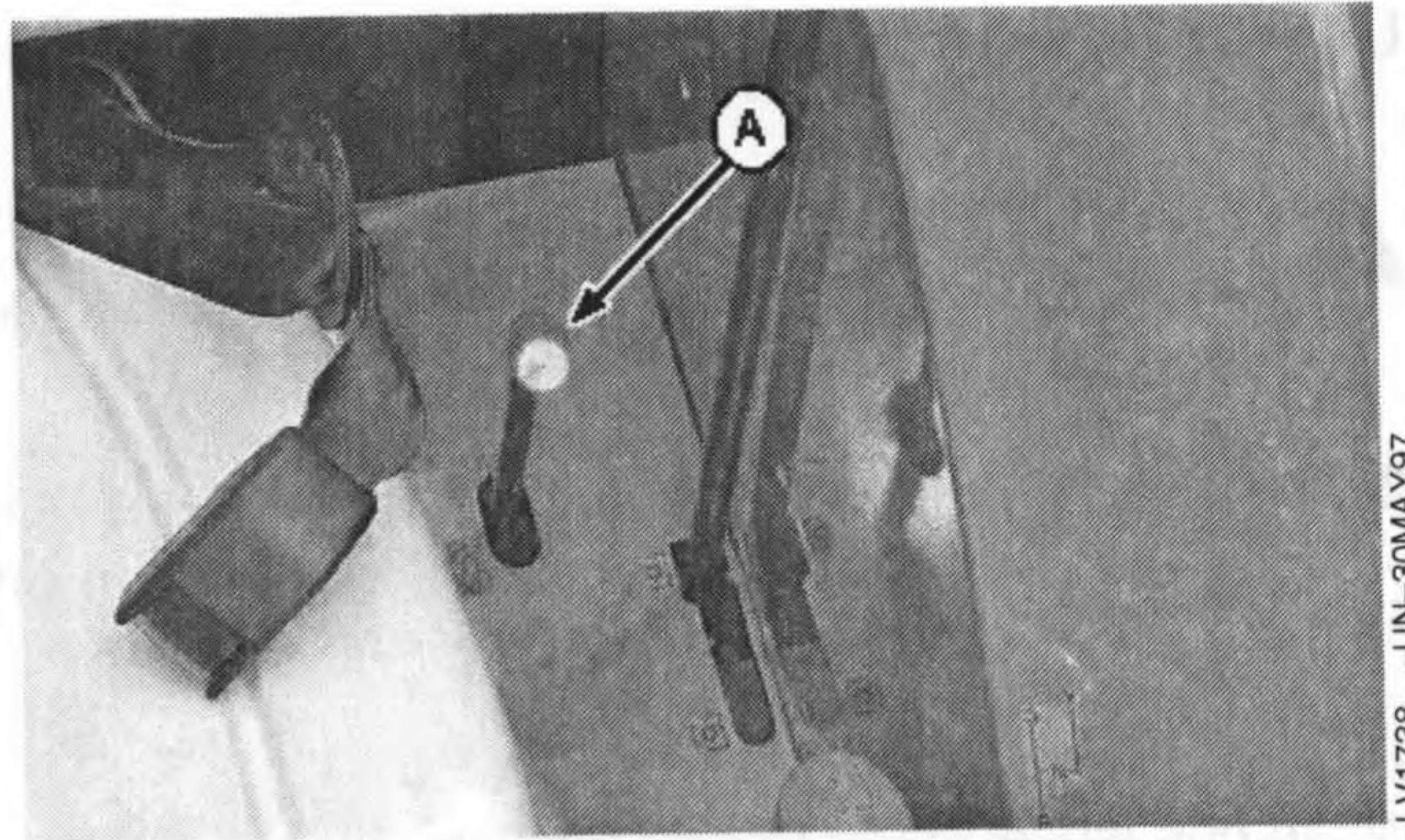
When driving on icy, wet or graveled surfaces, reduce speed and be sure tractor is properly ballasted to avoid skidding and loss of steering control. For best control, engage mechanical front wheel drive (if equipped).

IMPORTANT: To extend tire life, engage mechanical front wheel drive only when needed. **DO NOT** engage when driving on hard surfaces.

DO NOT install tire chains on tractor front wheels, chains will strike and damage tractor.

To prevent transmission damage, **DO NOT** engage or disengage mechanical front wheel drive on the go.

Depress clutch pedal and stop tractor before engaging or disengaging MFWD. Push shift lever (A) forward to engage, and pull lever back to disengage MFWD.



A—MFWD Control Lever

Stopping Tractor with CollarShift or SyncShuttle™ Transmission

CAUTION: Always place the gear shift lever in park (P) before dismounting. Leaving transmission in gear with engine off **MAY NOT** prevent tractor from moving.

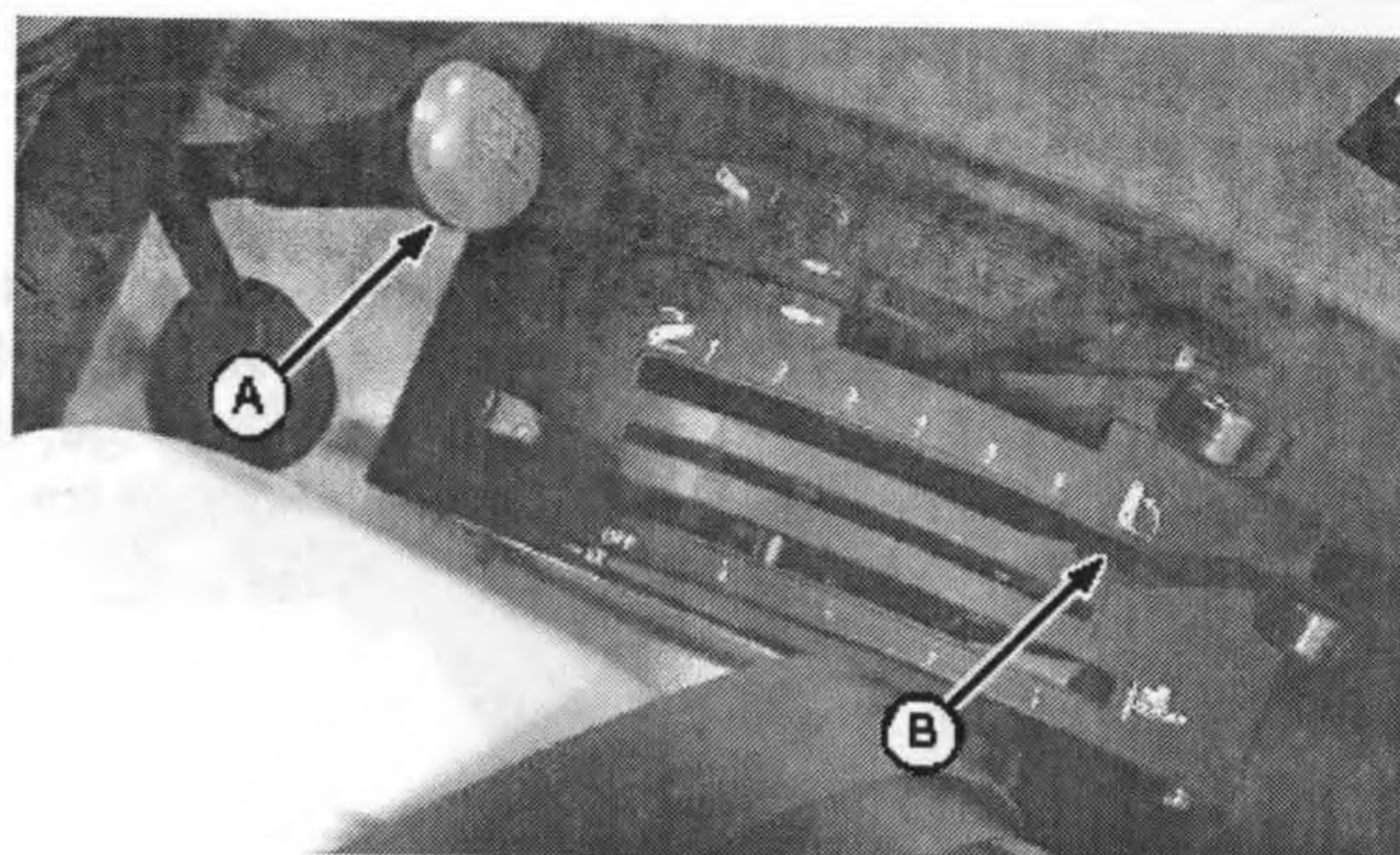
IMPORTANT: Tractor must be stopped before placing gear shift lever in park. Park pawl will not engage, and transmission may be damaged if tractor is moving.

1. Stop the tractor and place gear shift lever (A) in park.
2. Lower all equipment to ground using rockshaft control lever (B).
3. Pull hand throttle (C) back to slow idle position. Allow engine to idle for one to two minutes.

IMPORTANT: Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

CAUTION: Remove the key from key switch to prevent operation by untrained personnel.

4. Turn key switch to the OFF position.



LV1739 -UN-30MAY97



LV1735 -UN-29MAY97

A—Gear Shift Lever
B—Rockshaft Control Lever
C—Hand Throttle

SyncShuttle is a trademark of Deere & Company.

LV.5010DT,I -19-26MAY99-1/1

Stopping Tractor with PowrReverser™ Transmission

IMPORTANT: Tractor must be stopped before placing Forward-Neutral-Reverse lever in park position. Park pawl will not engage, and transmission may be damaged if tractor is moving.

1. Stop tractor using brakes.

PowrReverser is a trademark of Deere & Company.

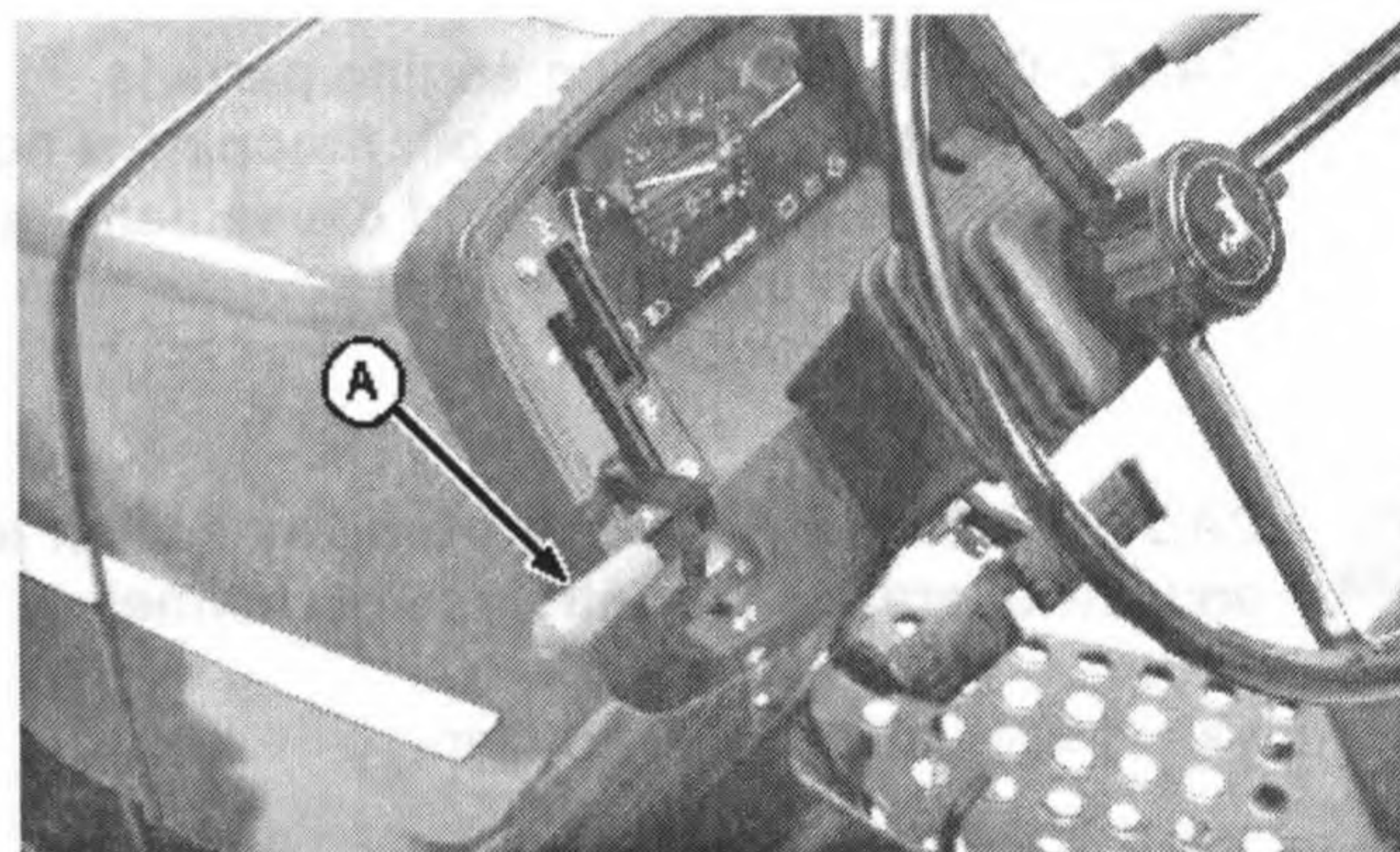
LV,5010DT,K -19-03JUN97-1/4



CAUTION: Always place Forward-Neutral-Reverse lever in park position before dismounting. Leaving transmission in gear with engine stopped **MAY NOT** prevent tractor from moving.

2. Move Forward-Neutral-Reverse (F-N-R) lever (A) through neutral gate and down into park position.

A—F-N-R Lever

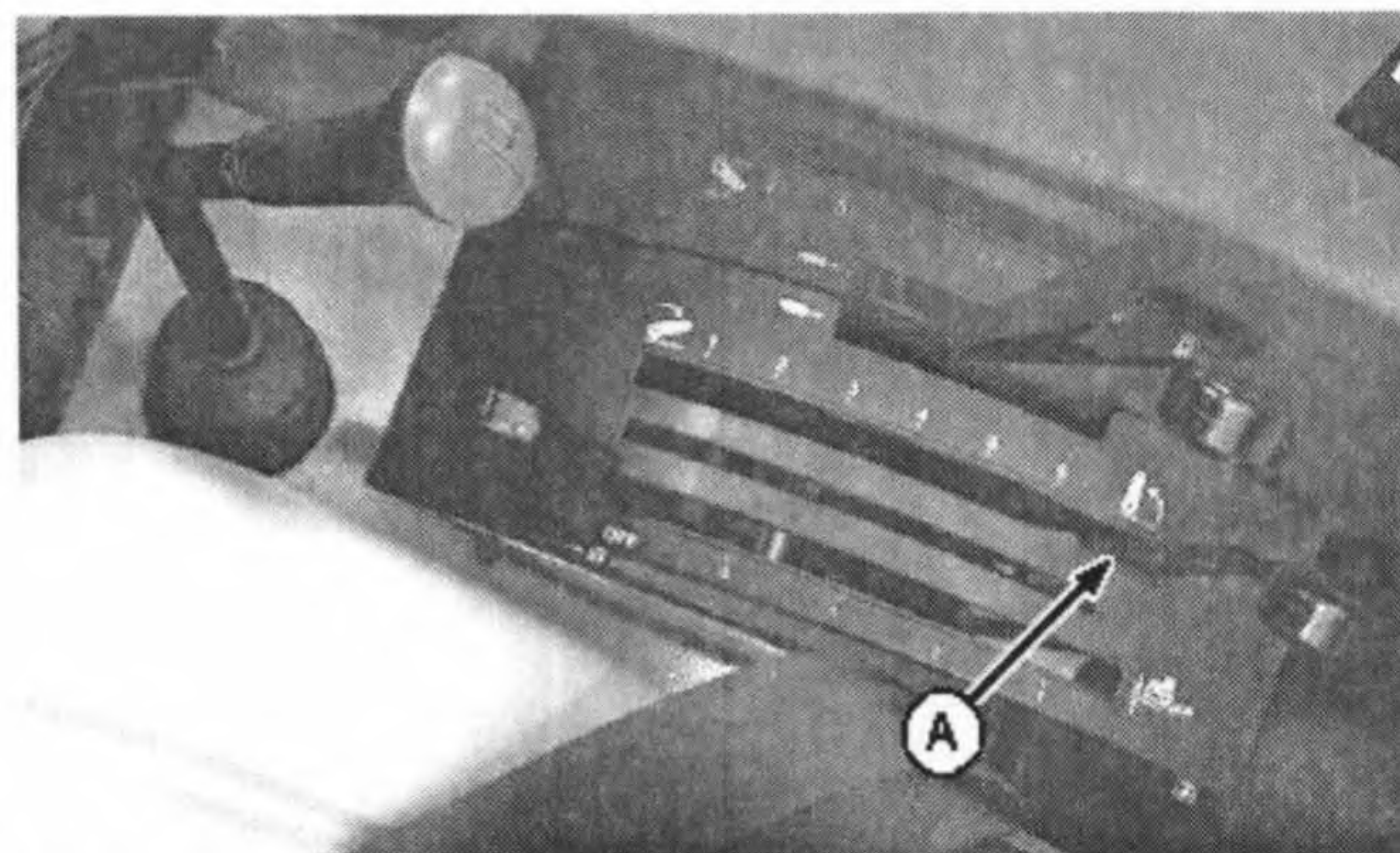


LV1983 -UN-26AUG97

LV,5010DT,K -19-03JUN97-2/4

3. Lower all equipment to ground using rockshaft control lever (A).

A—Rockshaft Control Lever



LV1729 -UN-30MAY97

Continued on next page

LV,5010DT,K -19-03JUN97-3/4

4. Pull hand throttle (A) back to slow idle position. Allow engine to idle for one to two minutes.



CAUTION: Remove key from key switch to prevent operation by untrained personnel.

IMPORTANT: Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by over heating or lack of lubrication.

5. Turn key switch to the OFF position.

A—Hand Throttle



LV1728 -JUN-30MAY97

LV,5010DT,K -19-03JUN97-4/4

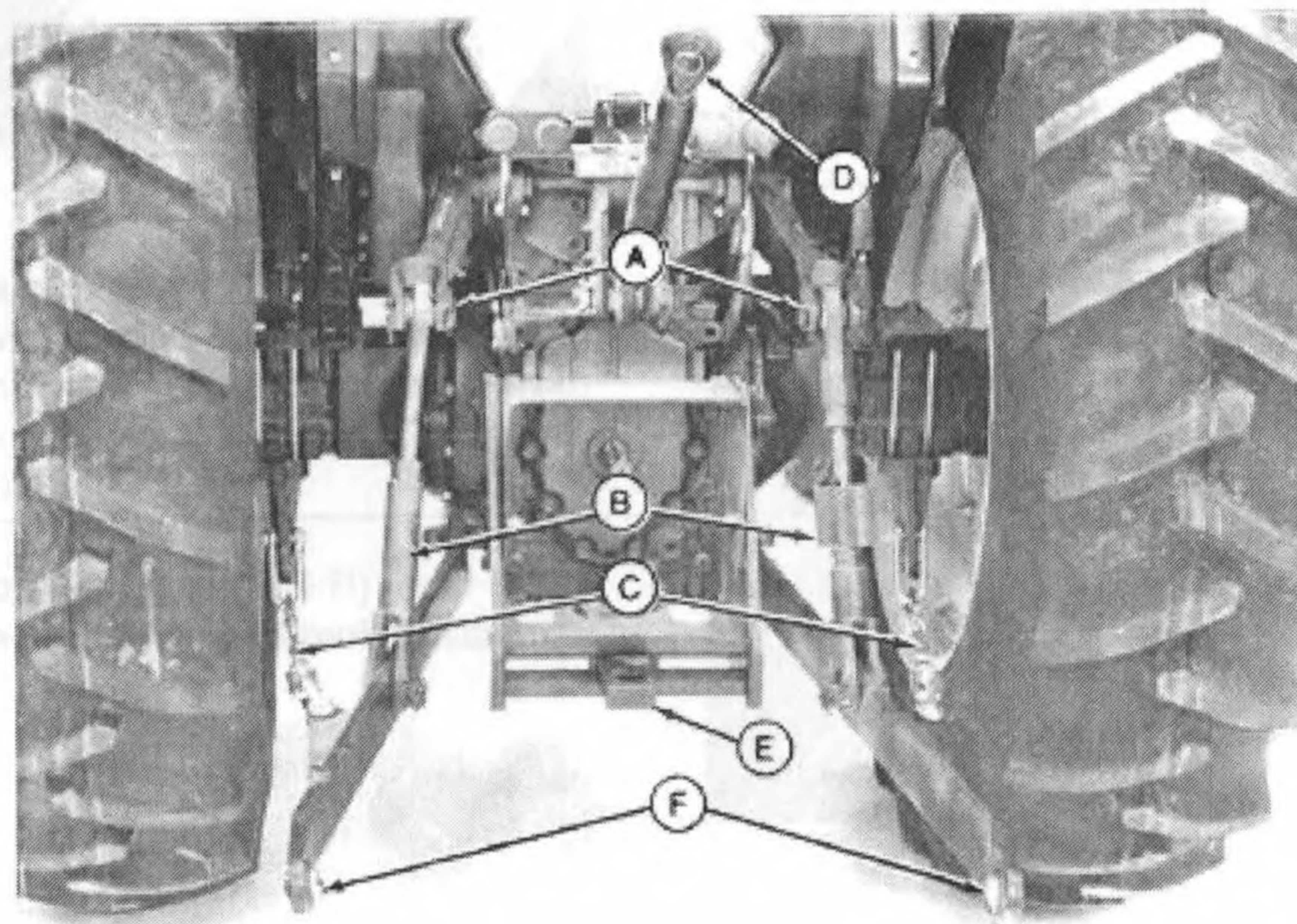
Rockshaft and 3-Point Hitch

Match Tractor Power to Implement

IMPORTANT: Tractor power should be matched to the size of certain implements. Excessive power can damage an implement, and too large an implement can damage the tractor. (Refer to your implement operator's manual for minimum and maximum power requirements before attaching an implement.)

MX,PMIP,A -19-18MAR92-1/1

3-Point Hitch Components



M46387 -UN-31JAN92

A—Lift Arms
B—Lift Links

C—Sway Chains
D—Center Link

E—Drawbar

F—Fixed Draft Links

NOTE: Telescoping draft links are an available option in place of fixed draft links (F).

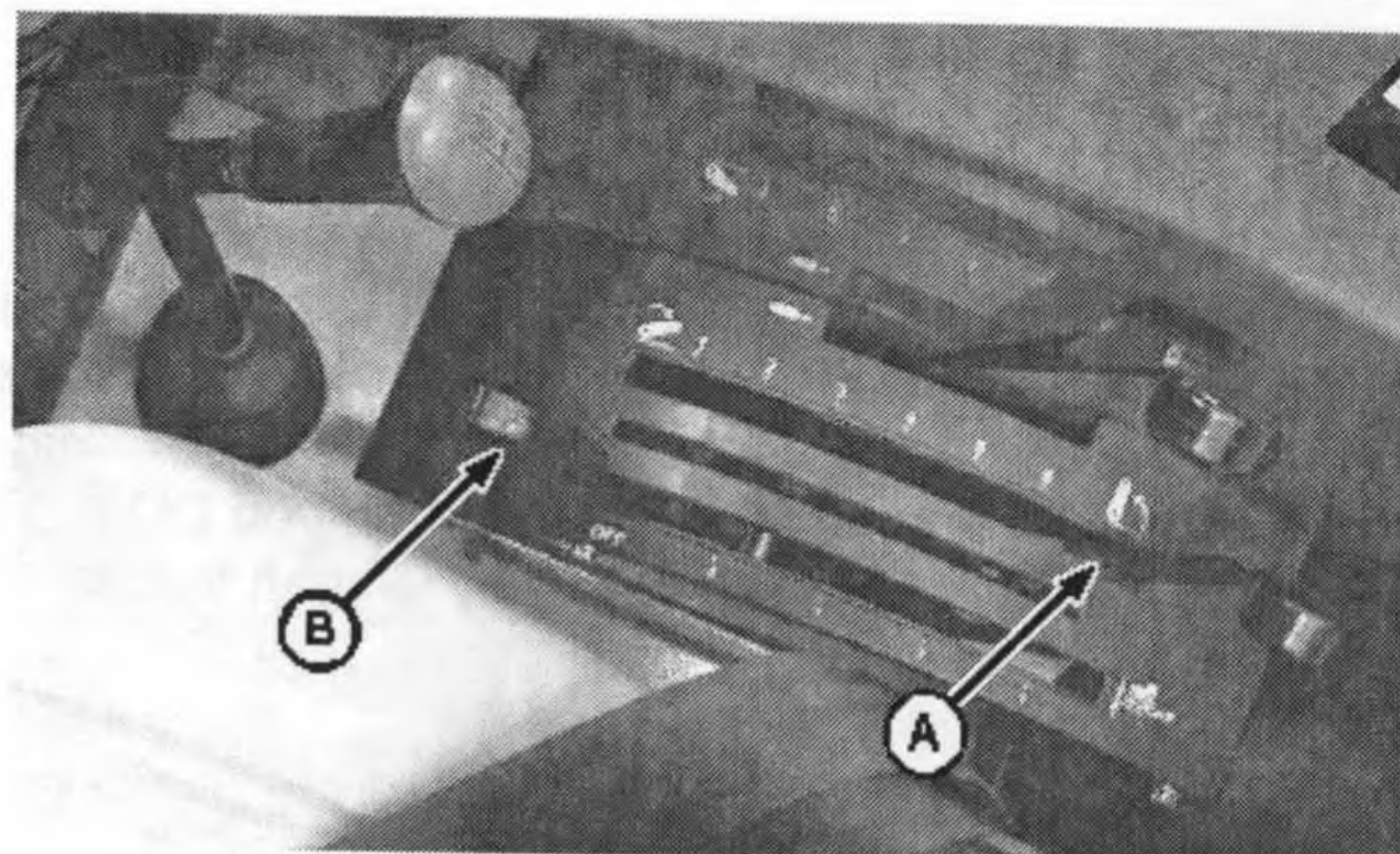
MX,PMIP,BA2 -19-04AUG95-1/1

Rockshaft Control Levers

The rockshaft position is controlled by two levers, the position control lever (A) and the draft control lever (B).

The position control lever (A) raises the hitch when pulled rearward, and lowers the hitch when moved forward. See Using Rockshaft Position Control in this section for more information.

The draft control lever (B) controls hitch position relative to draft loads. See Using Draft Control in this section for more information.



A—Rockshaft Position Control Lever
B—Rockshaft Draft Control Lever

LV,5010RH,A -19-03JUN97-1/1

Using Rockshaft Position Control



CAUTION: To prevent unexpected movement of rockshaft, place draft control lever (B) in a full forward position before attaching an implement.

Place draft control lever (B) forward when you DO NOT want rockshaft to adjust automatically to draft load, such as attaching implement to tractor.

Use position control lever (A) to control hitch movement and depth. Position control should be used for the following applications:

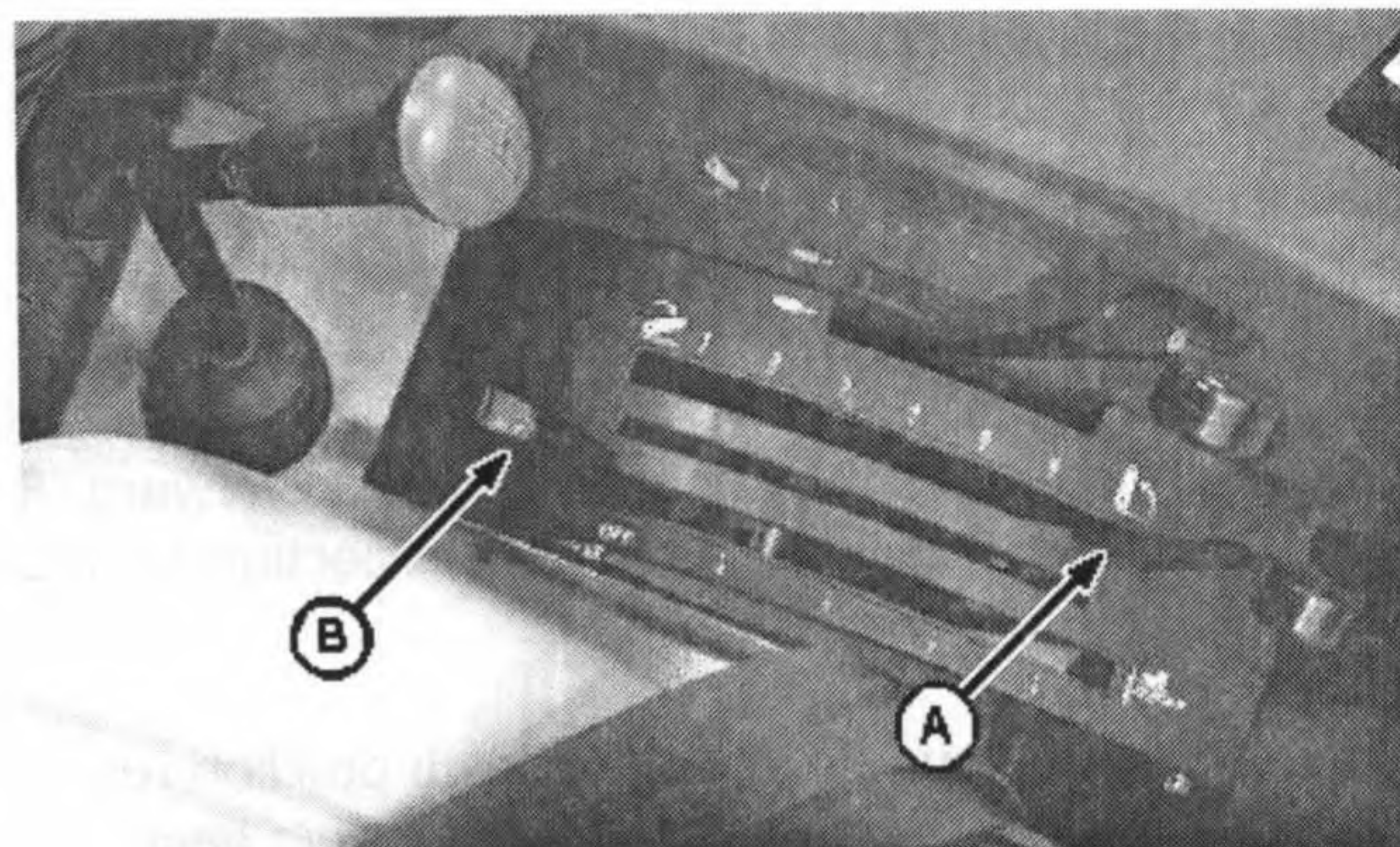
TRANSPORT of implements and end of field turn-around. Position control lever should be moved fully rearward (C) for transport for both load and non-load sensing usage.

CONSTANT DEPTH of implements on level terrain and for non-ground engaging implements such as spreaders or sprayers. Place position control lever at depth desired (D).

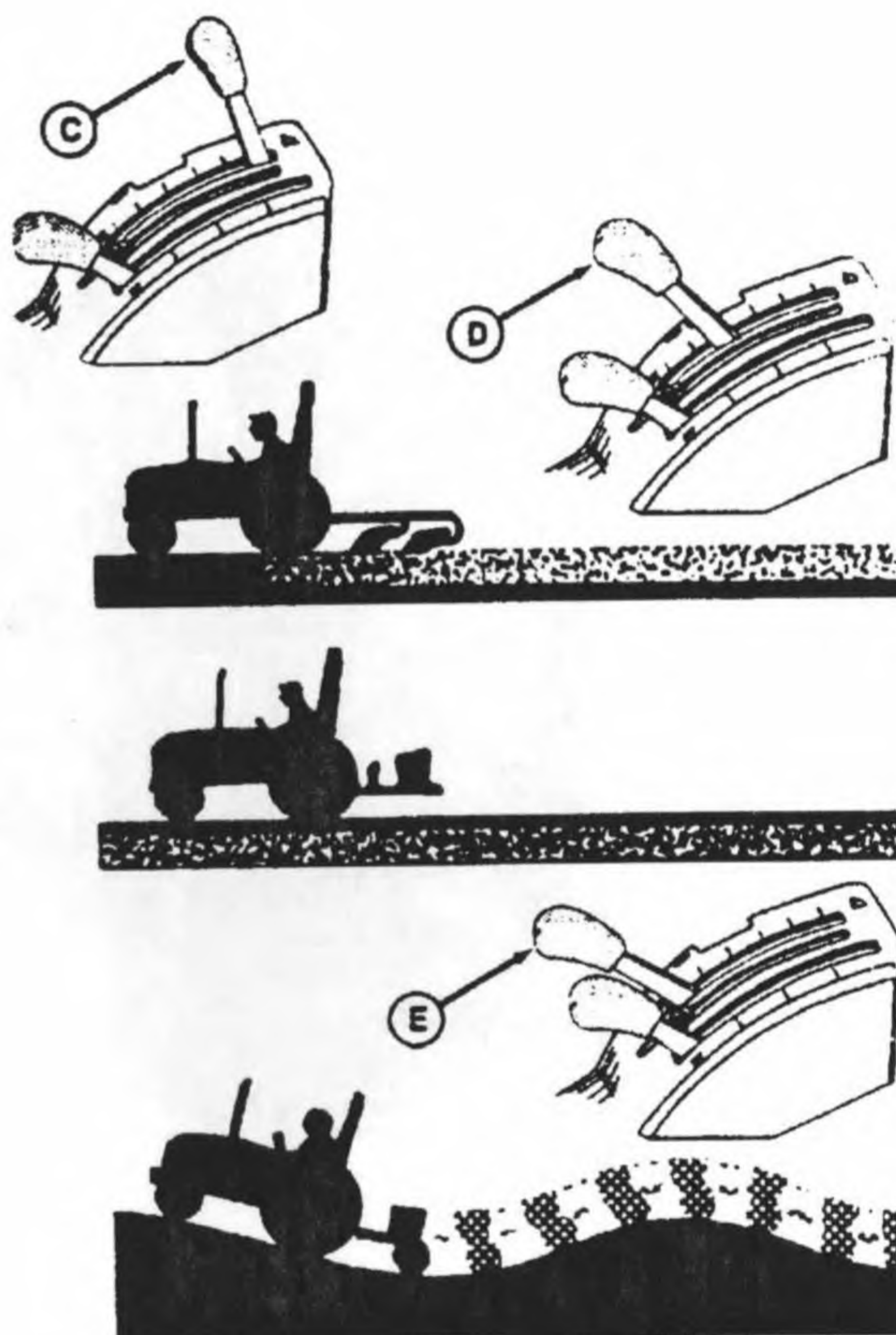
FLOAT operation for implements with skids or depth gauge wheels designed to carry full implement weight. Push both levers all the way forward (E) so implement can follow the ground contour.

NOTE: Lift links can be adjusted for lateral float. (See *Lateral Float* in this section.)

- A—Rockshaft Position Control Lever
- B—Rockshaft Draft Control Lever
- C—Position Control Lever in Rearward Position
- D—Position Control Lever in Desired Depth Position
- E—Position Control Lever in Float Position



LV1740 -UN-30MAY97



M47168 -UN-31JAN92

LV,5010RH,B -19-03JUN97-1/1

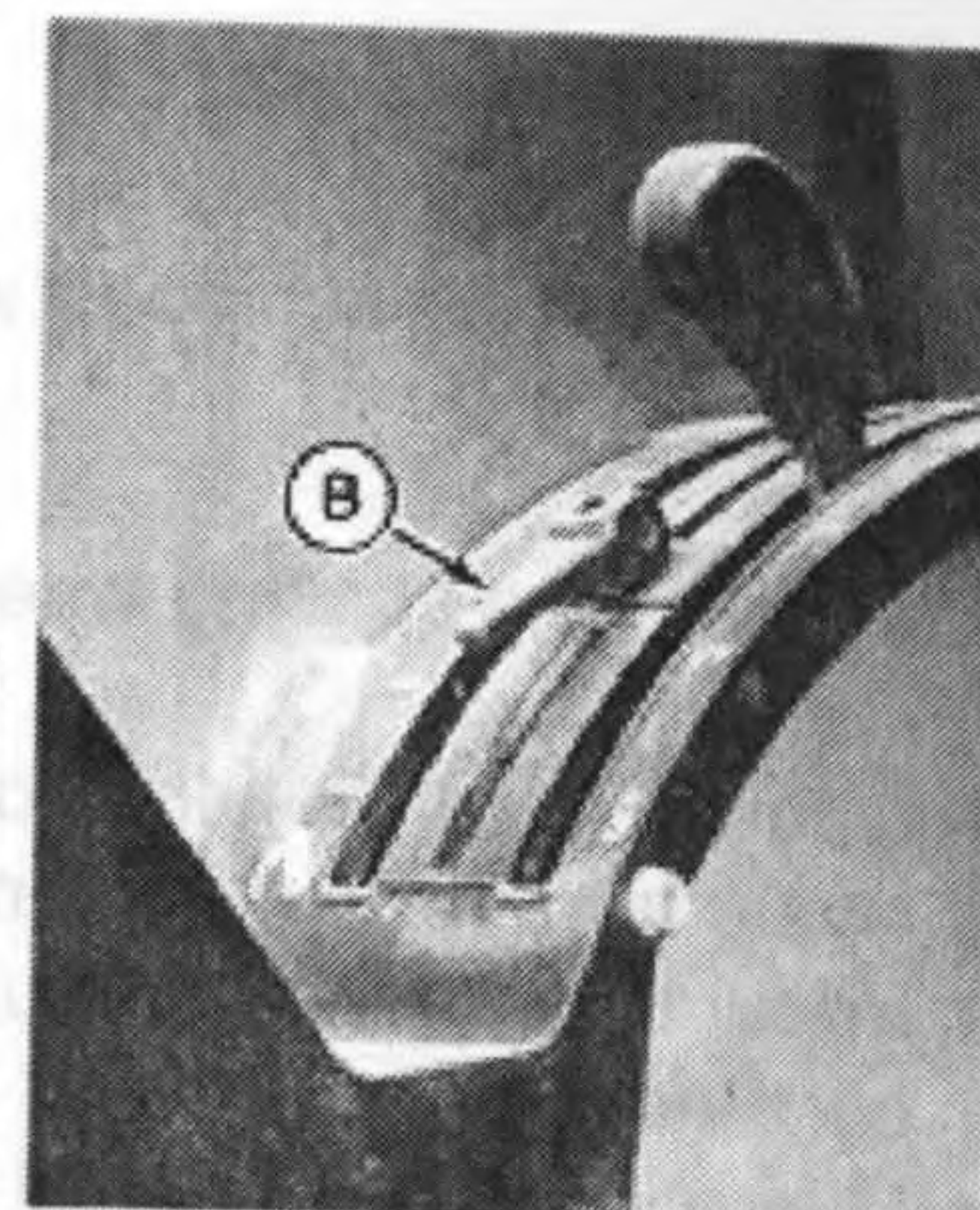
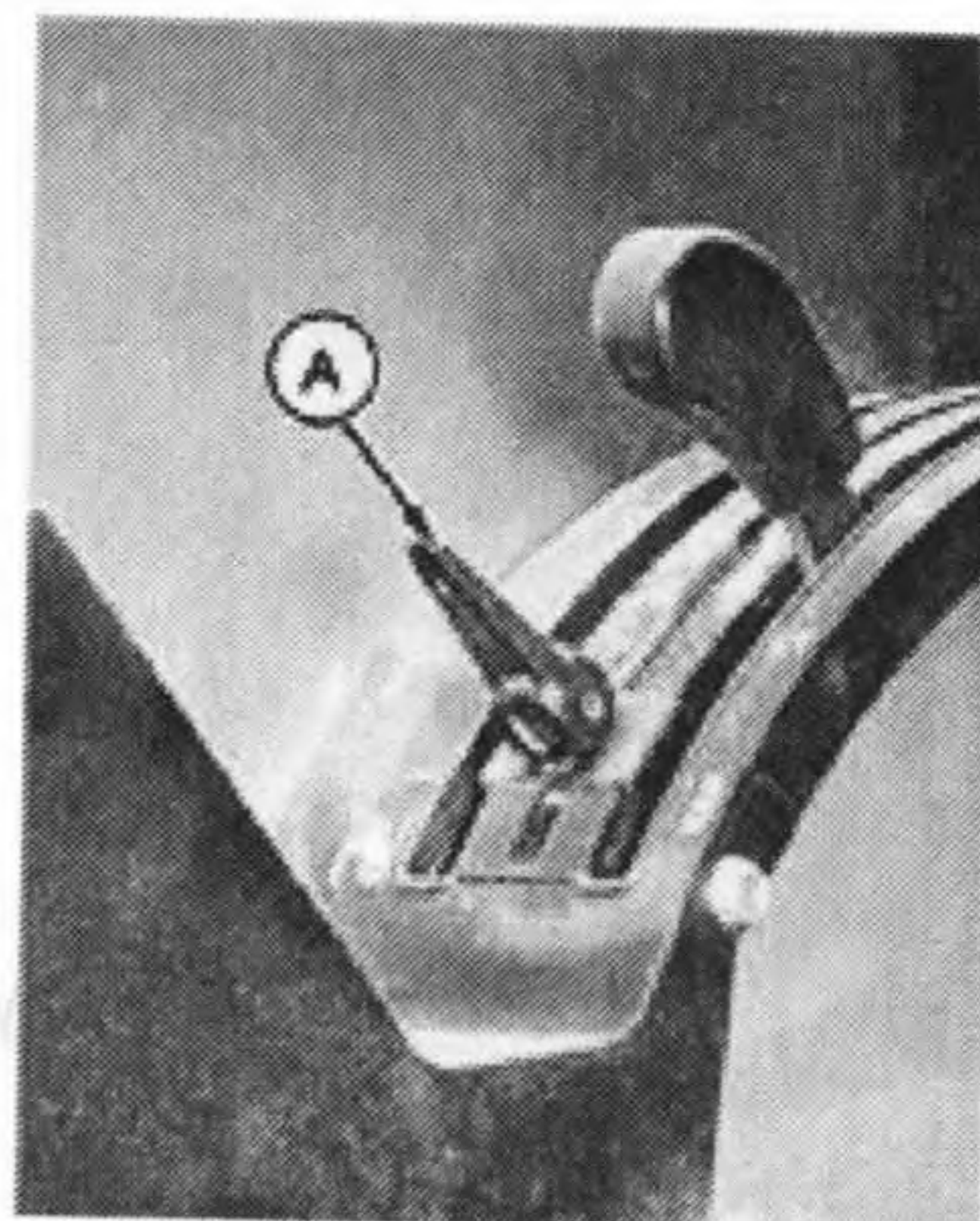
Setting Position Control Lever Stop

NOTE: Position control lever stop is used when operating depth or height needs to be repeated.

1. Operate implement for a few minutes to determine proper depth or height.
2. Raise lever stop (A), and slide against position control lever. Lock stop in position by pressing lever down (B). Rockshaft will now lower to same position each time control lever is pushed forward to the stop.

A—Lever Stop

B—Lever in Down Position



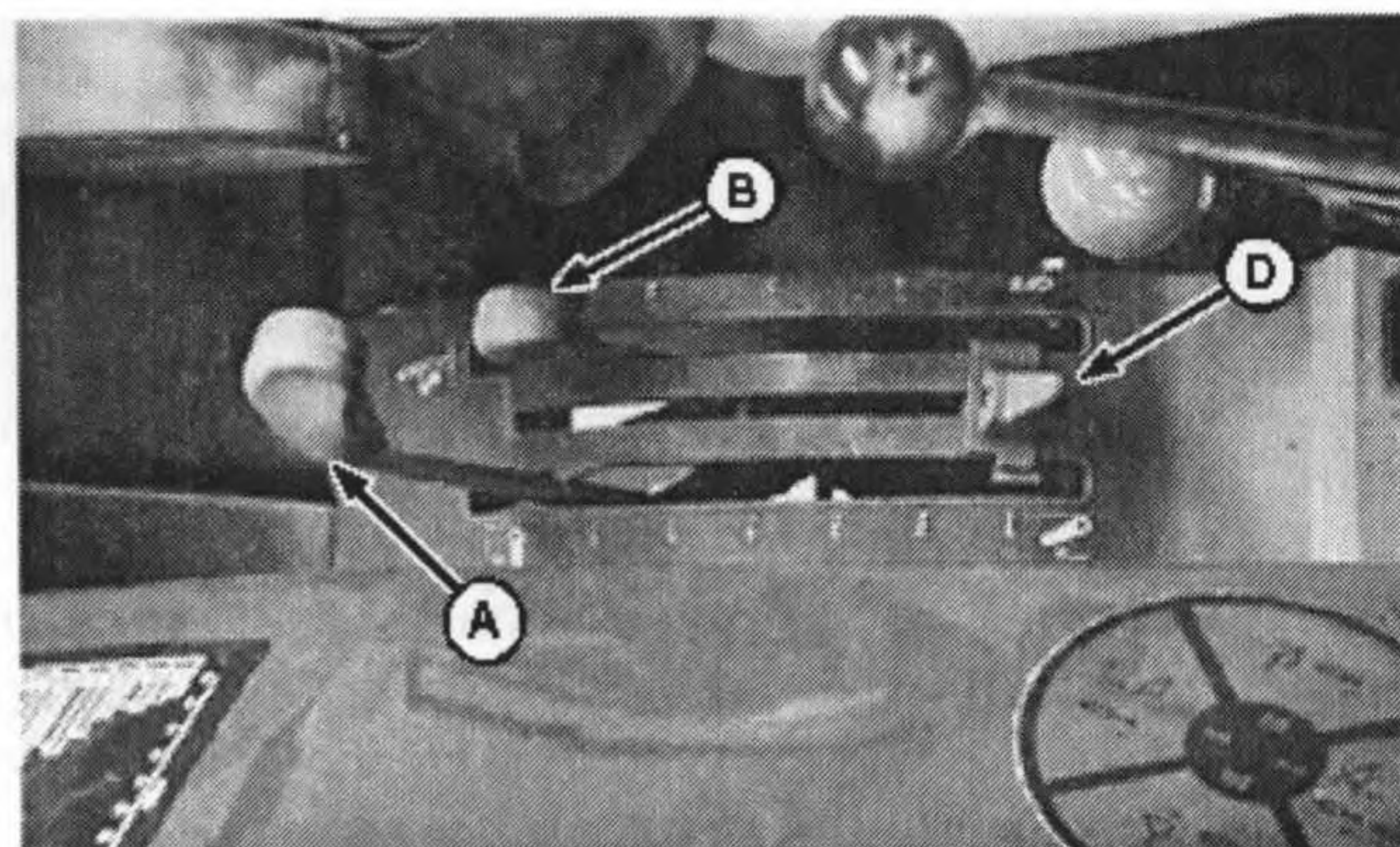
LV.5010RH,H -19-10SEP97-1/1

Using Draft Control

The rockshaft is equipped with variable draft control system.

Use draft load sensing when:

- Operating with a fully mounted implement in hill and swale terrain. The implement will raise and lower to follow the ground contours while maintaining a nearly constant depth.
- Operating in varying soil conditions. The implement is raised slightly to get through tough spots so you do not have to shift to a lower gear.



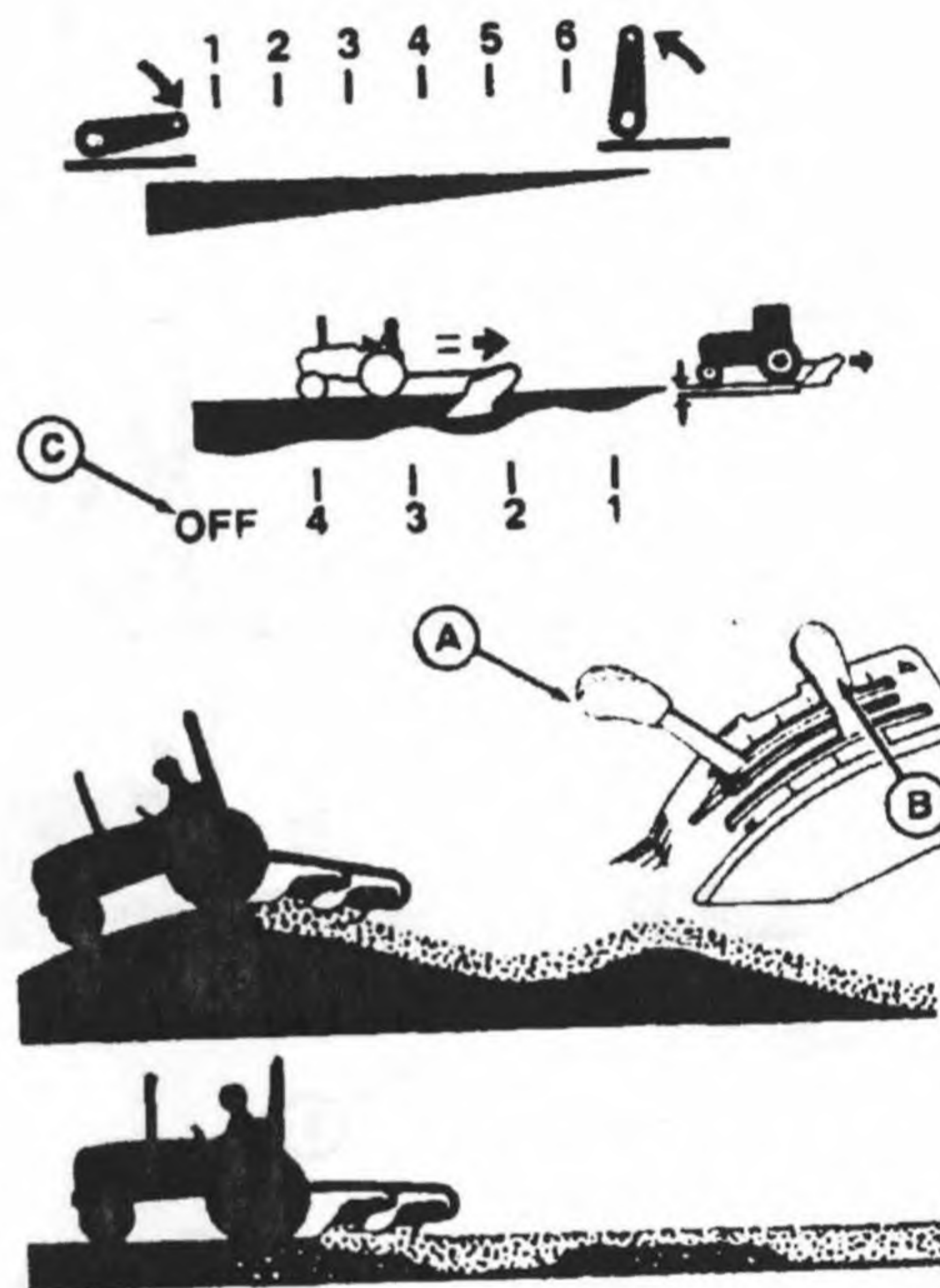
LV1990 -UN-27AUG97

Draft control lever (B) controls amount of load required before hitch responds. With lever placed fully forward to the position marked "off" (C), there is no draft sensing. Placing the lever toward the rear position reduces the amount of draft load required to override the position setting set by the position control lever (A) and raise the rockshaft.

Draft sensitivity ranges can be changed by repositioning the center link. (See Positioning Center Link in this section for additional information.)

For draft load sensing operation:

- Initially place position control lever (A) in its fully rearward position and the draft control lever (B) in the fully forward (least draft) position.
- With tractor moving, push position control lever (A) forward to set implement operating depth. Set position control lever stop (D) so control lever can be brought back to the same position. The operating depth set-up will prevent the rockshaft from lowering all the way when the tractor begins to slip. Then pull draft sensing lever (B) rearward until desired draft sensing sensitivity is obtained.
- The position control lever (A) can also be raised slightly to override the draft control setting to help get through slippery spots without getting stuck.
- The position control lever (A) can be moved fully rearward to raise the hitch at the end of the field.



A—Position Control Lever
B—Draft Control Lever
C—OFF Position
D—Position Control Lever Stop

M47169 -19-29JAN92

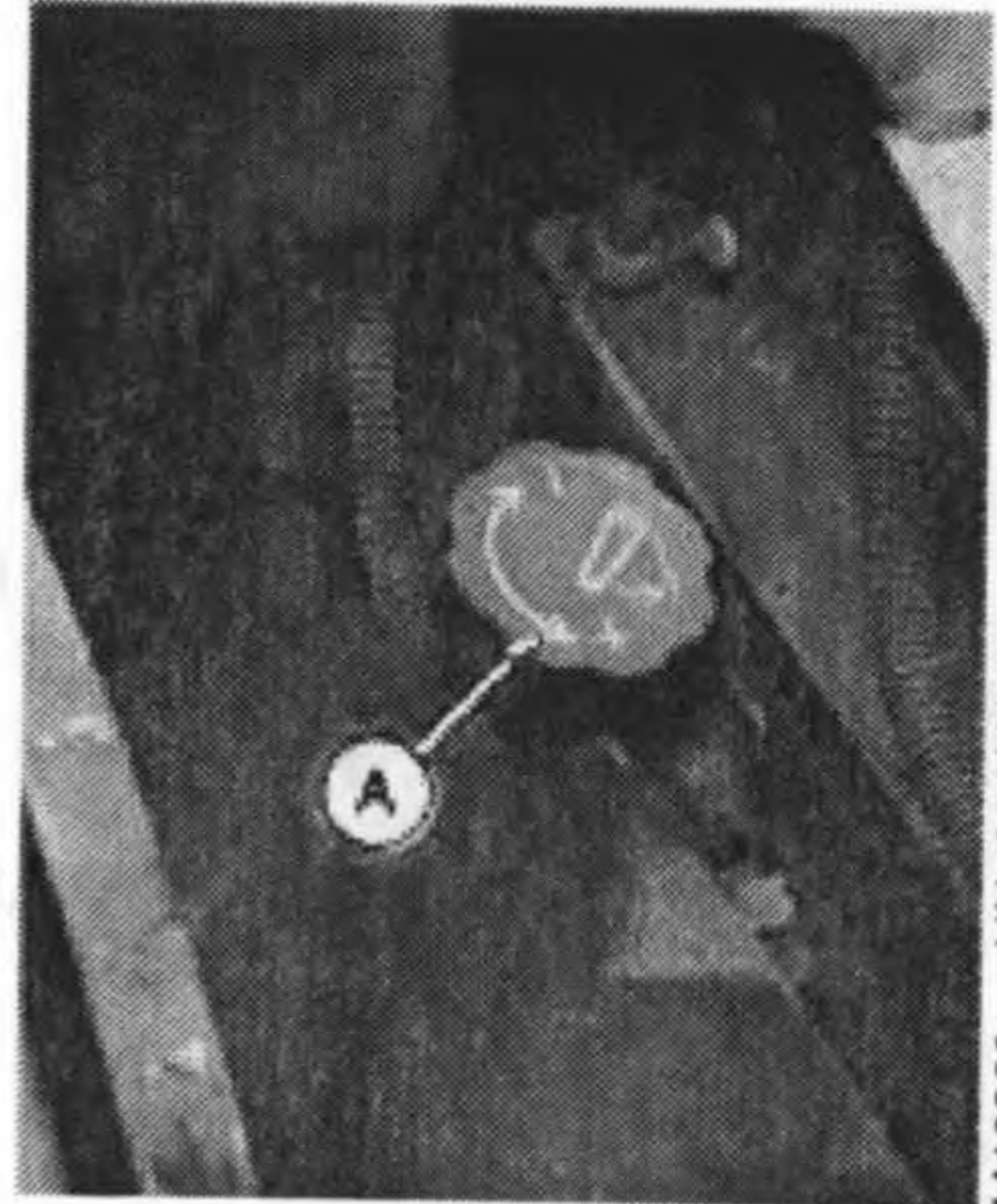
Adjusting Rockshaft Rate-of-Drop

CAUTION: Excessive rate-of-drop may cause damage or injury. Fully lowering implement should require at least two seconds.

Rockshaft drops faster when a heavy implement is attached. Adjust rate-of-drop knob so that it is slow enough to be safe and prevent implement damage.

Turn rockshaft rate-of-drop knob (A), located under right-hand rear of seat, clockwise to slow rockshaft drop.

Turn knob counterclockwise to increase rate-of-drop.



M46393 -UN-31JAN92

A—Rockshaft Rate-of-Drop Knob

LV,5010RH,I -19-27MAY99-1/1

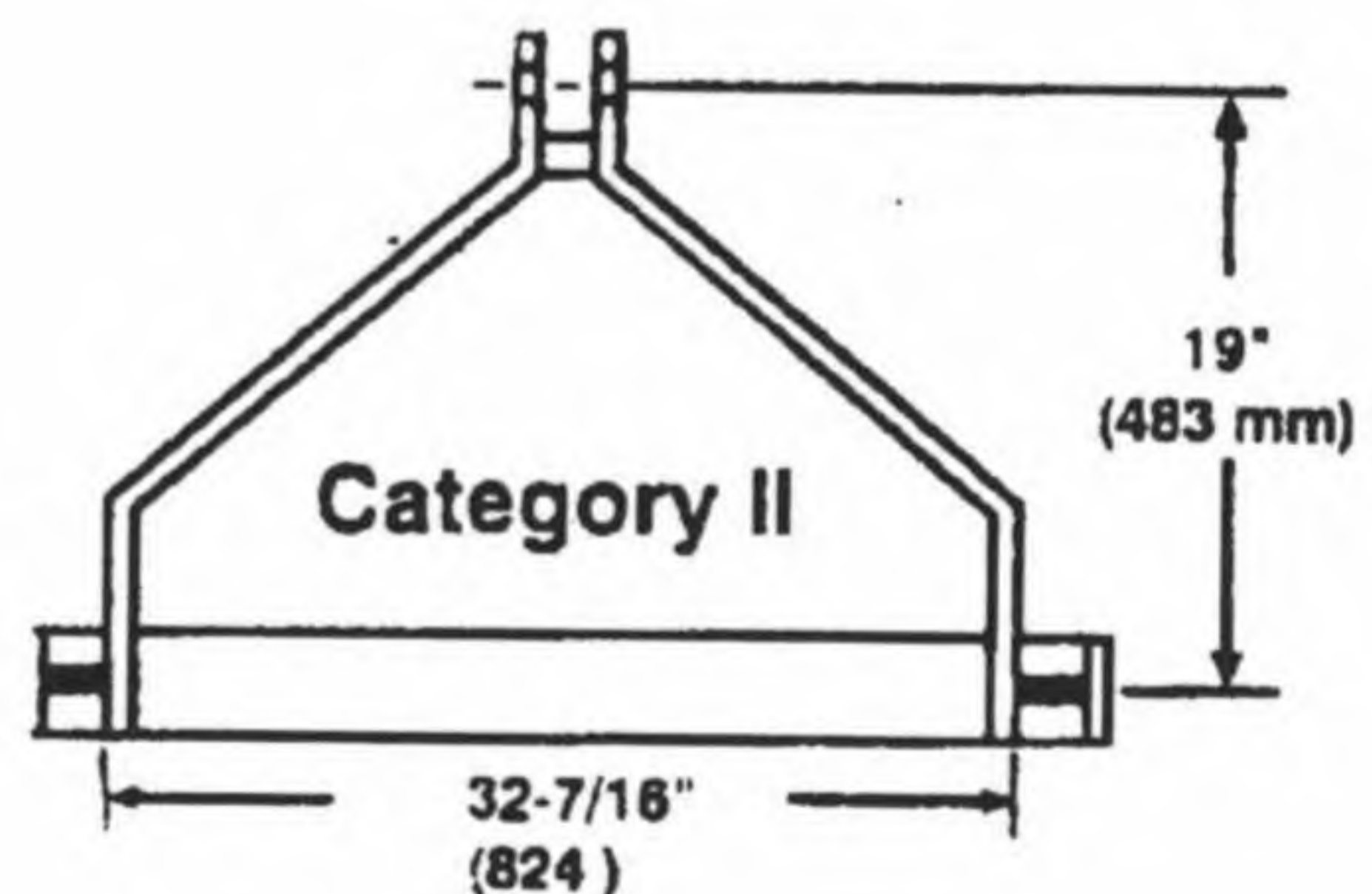
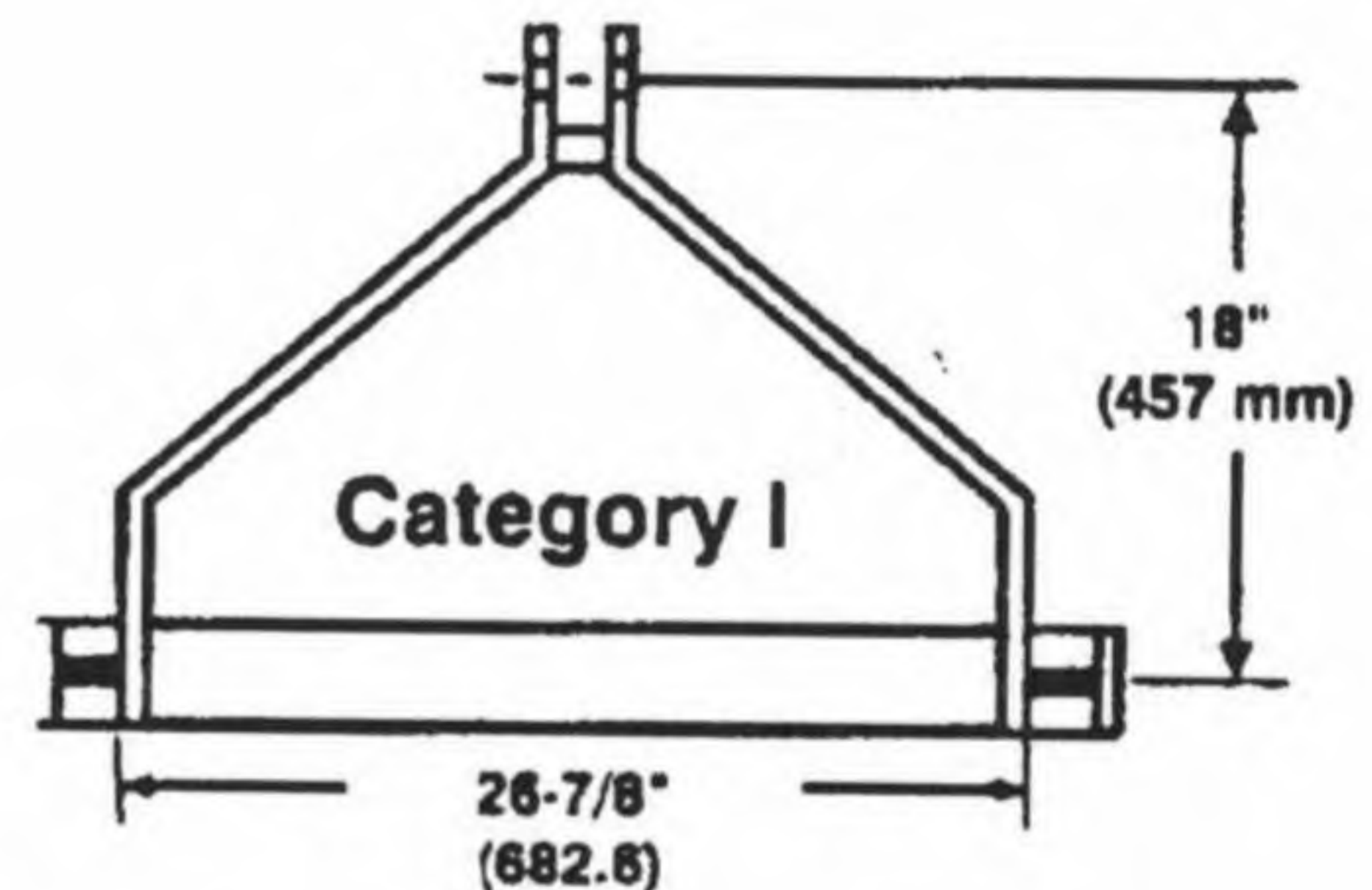
Preparing Implement

IMPORTANT: When attaching Category I implements to the tractor, sway chains may need lengthening to prevent binding and limiting full raise of the hitch. (See Adjusting Hitch Side Sway in this section.)

Category I, 3-Point Hitch is narrower and is used on smaller implements than Category II implements. Refer to the chart below to identify implement category.

Category II implements should have the top hole of the implement mast located 483 mm (19 in.) above the lower pins. Drill another hole in top mast or extend top mast if necessary.

Category	Mast Height	Width Between Lower Pins	Pin Size	
			Lower	Upper
I	457 mm (18 in.)	682.6 mm (26-7/8 in.)	22 mm (7/8 in.)	19 mm (3/4 in.)
II	483 mm (19 in.)	824 mm (32-7/16 in.)	28 mm (1-1/8 in.)	25.4 mm (1 in.)



M47170 -19-29JAN92

MX,PMIP,FA3 -19-27MAY99-1/1

Converting Category II Hitch to Category I

Tractor center link and draft link ends are sized for Category II implement attaching pins.

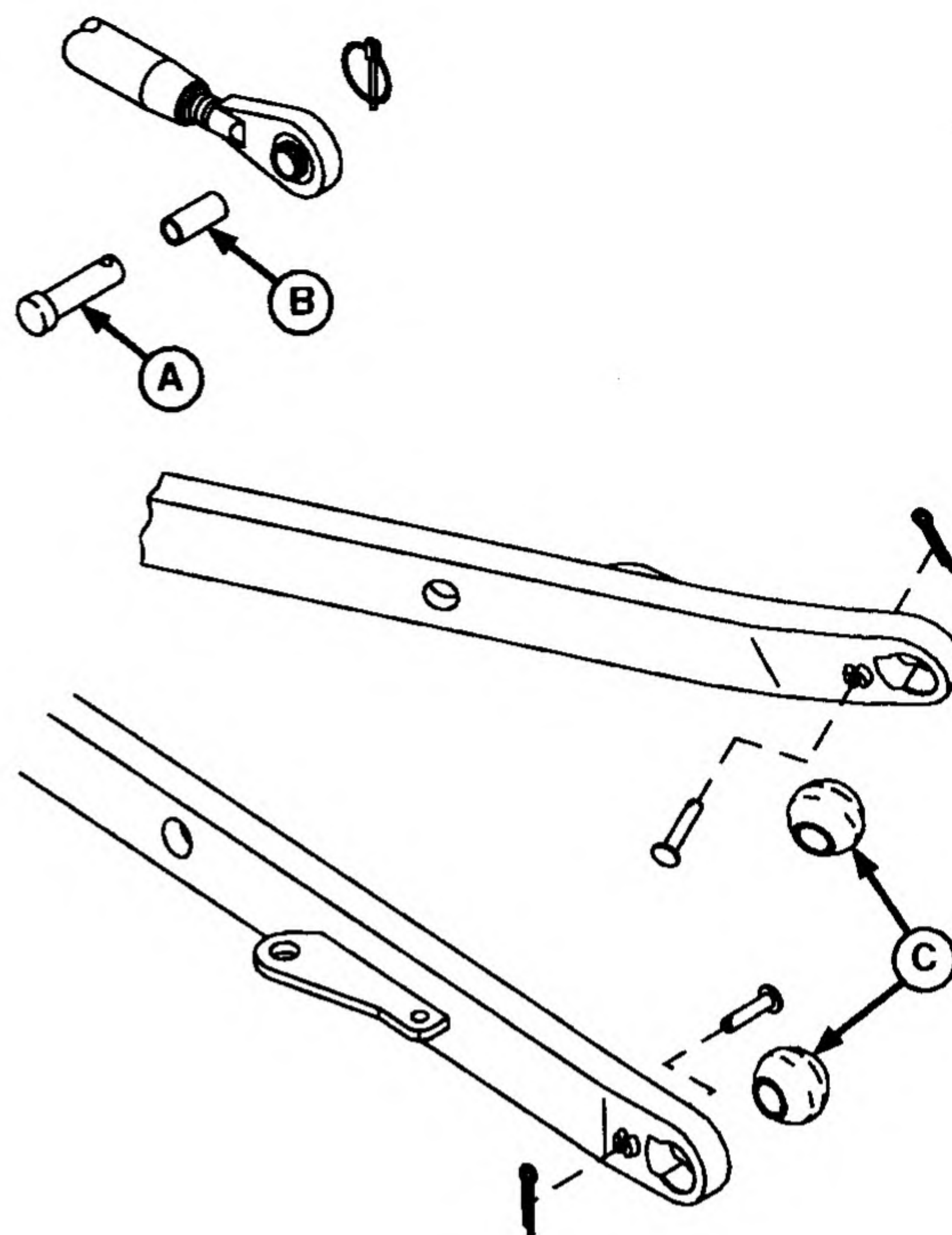
If Category I implements are to be used, the Category II hitch can be converted as follows:

Insert bushing (B) to reduce diameter of center link end. Smaller implement mast pin (A) is also needed when bushing is installed.

Replace balls (C) in end of draft links.

See your John Deere dealer for parts.

- A—Mast Pin
- B—Center Link Bushing
- C—Draft Link Balls



Fixed Draft Links Shown

LV,5010RH,D -19-09SEP97-1/1

LV844A -UN-21JUL95

Positioning Center Link

The center link attaching bracket has holes which allow three different positions for attaching the center link. The position affects the draft sensing sensitivity.

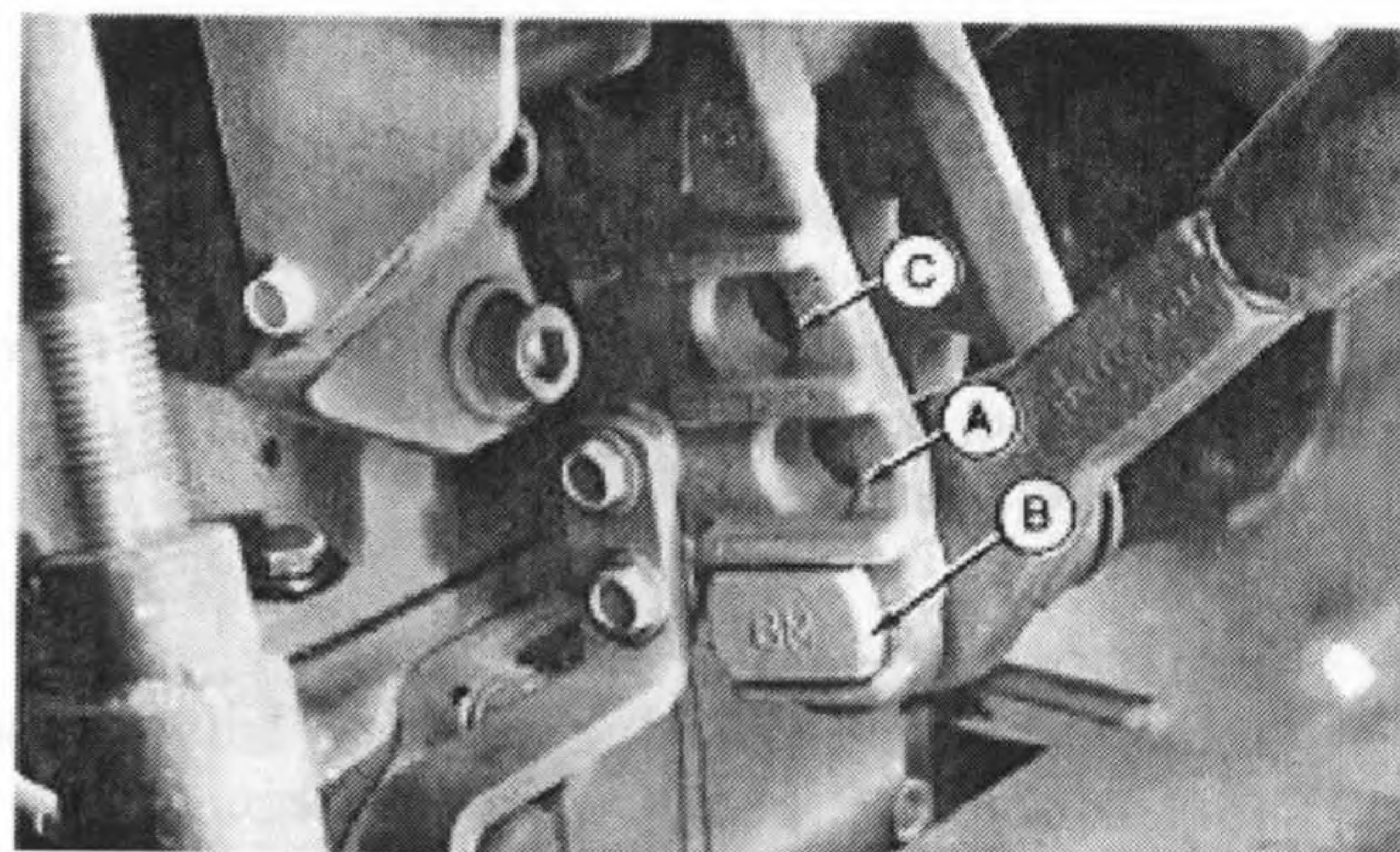
Move the center link attachment to holes (A) or (C) if:

- Excessive hitch activity or hunting occurs in draft control operation.
- The rear of the implement raises too much when lifted. The implement weight which can be lifted is reduced slightly with the center link attachment in the lower holes.
- The draft control lever range is too small.

Move the center link attachment to holes (A) or (B) if:

- The hitch seems unresponsive in draft control operation and allows the engine speed to drop too far before raising the rockshaft.
- The rear of the implement droops and drags the ground as the implement is lifted.

NOTE: Implements with Category I mast height 457 mm (18 in.) will normally use the lower two attaching holes and implement with Category II mast height 483 mm (19 in.) will use the upper two holes.



A—Middle Hole
B—Lower Hole
C—Upper Hole

M46394 -UN-31JAN92

MX,PMIP,HA1 -19-27MAY99-1/1

Attaching Implements to 3-Point Hitch

If Equipped with Fixed Draft Links:

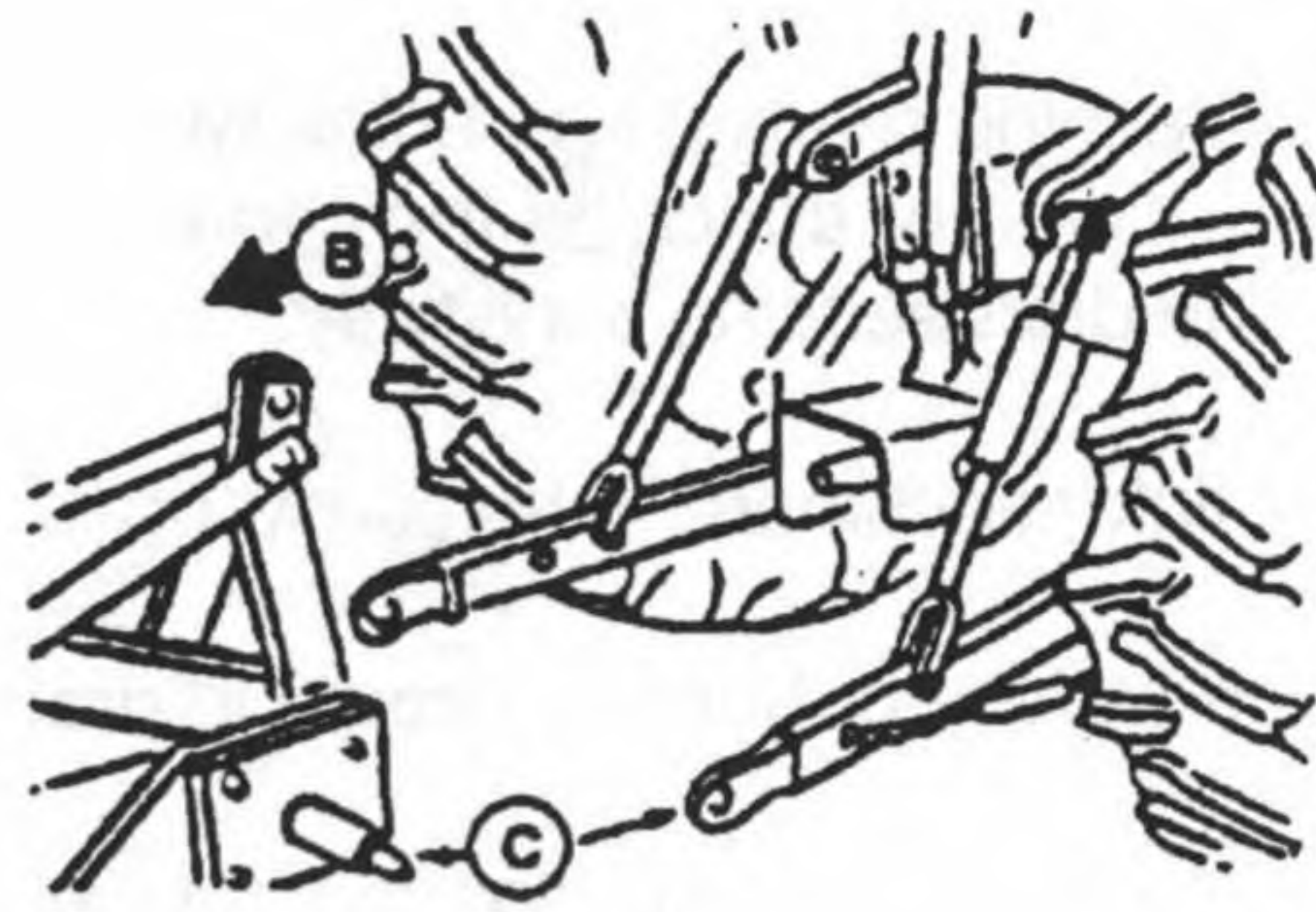
1. Be sure drawbar will not interfere. If necessary, move drawbar ahead, or remove it. Check for any other potential interference.



CAUTION: Prevent unexpected movement of rockshaft by placing draft sensing lever in the forward or "off" position before attaching implement to hitch.

2. Back tractor up to implement (B) so hitch points align. Place transmission in park and stop the engine BEFORE leaving the tractor seat.
3. Slip draft links over implement hitch pins (C), and retain with quick-lock pins.

NOTE: Locking pins can be stored on draft links when not in use.

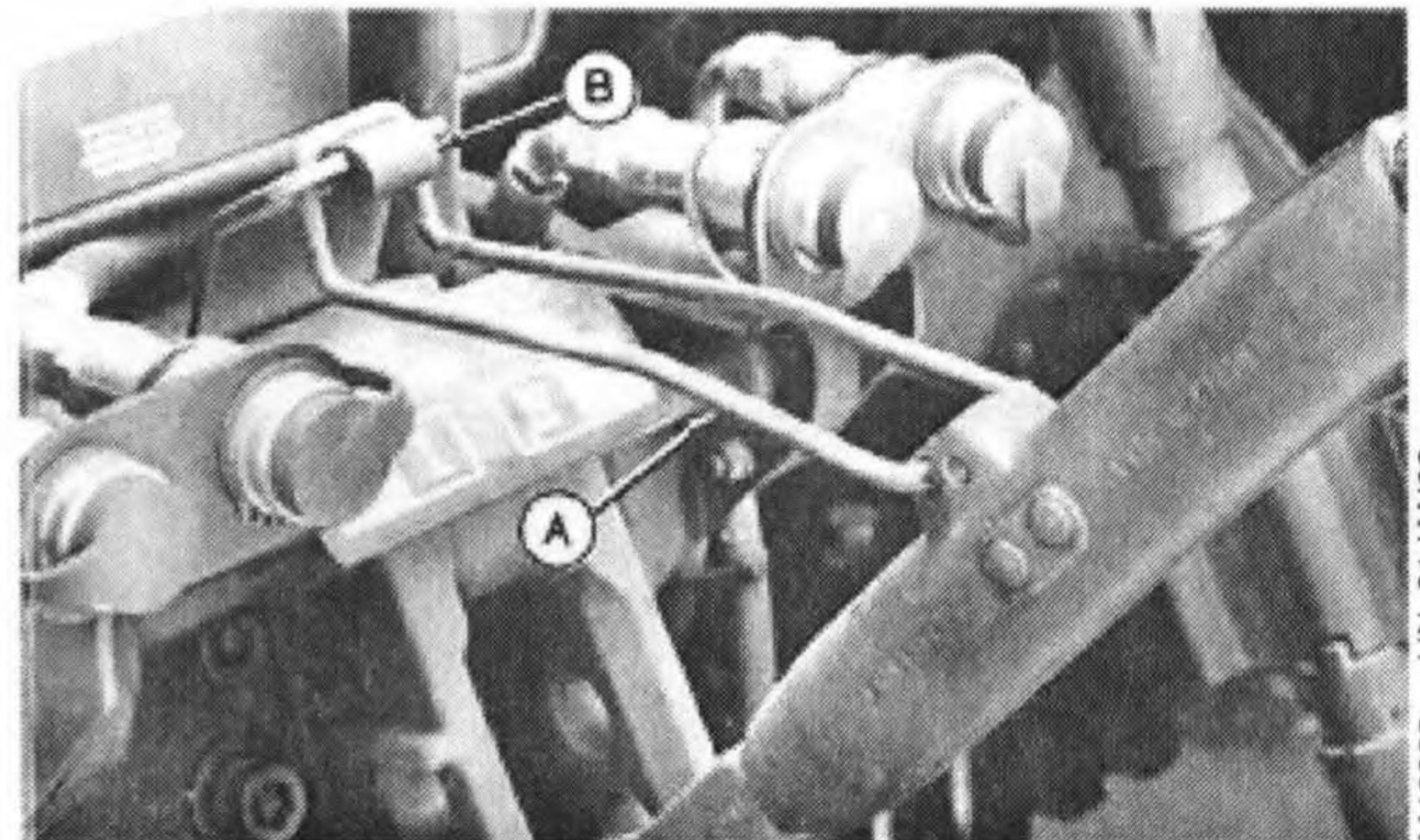


B—Implement
C—Implement Hitch Pins

MX,PMIP,KA1 -19-09MAR95-1/4

4. To remove center-link from transport hook, lift center link locking clip (A), and rotate tab (B) to rear of center link clip.
5. Attach center link to implement top mast.
6. Adjust center link and lift links as necessary. (See Leveling the Hitch in this section.)

A—Center Link Locking Clip
B—Tab



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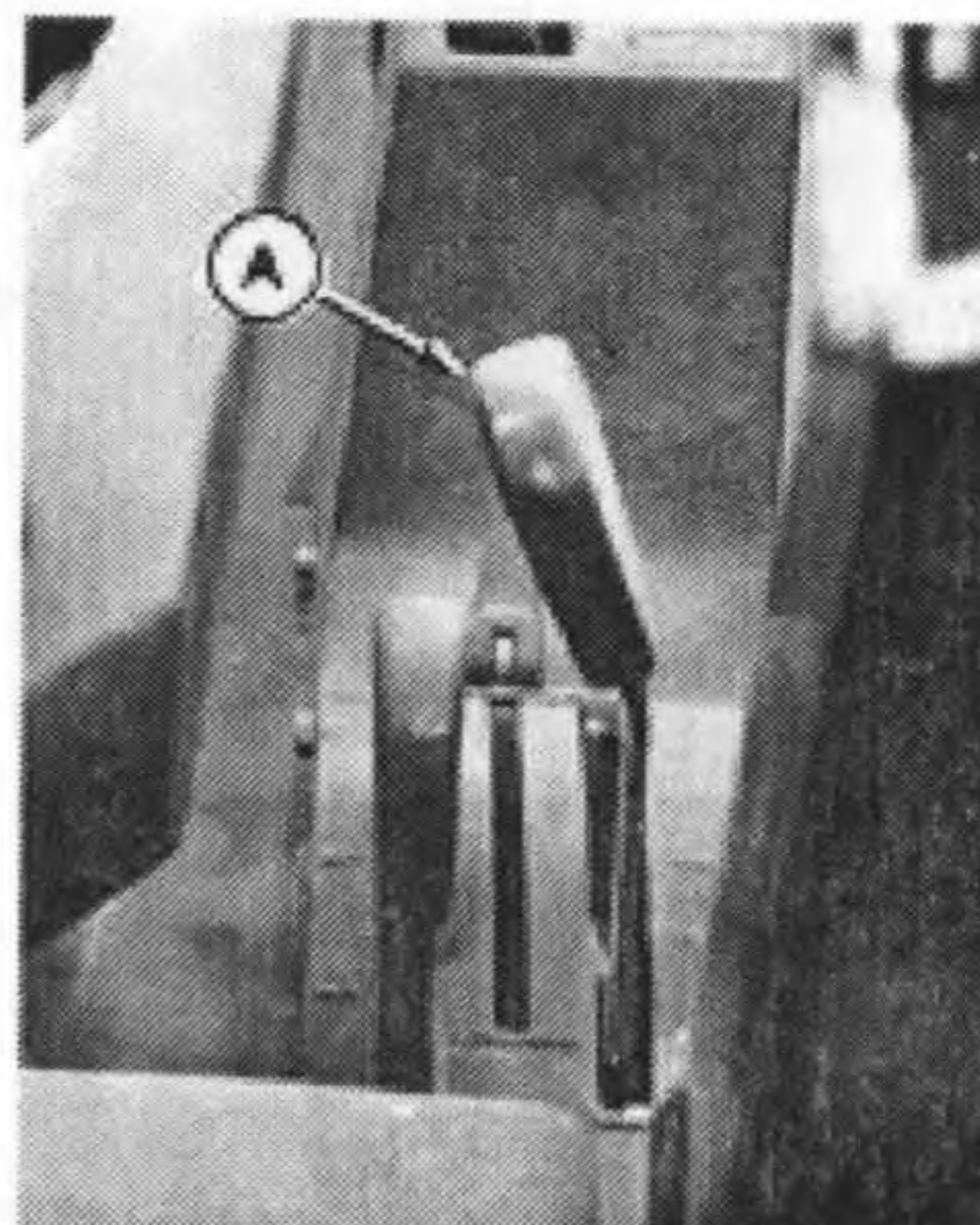
MX,PMIP,KA1 -19-09MAR95-2/4



CAUTION: To avoid bodily injury or machine damage whenever an implement, implement quick coupler, or other attachment is connected to the tractor 3-Point Hitch, check full range of operation for interference, binding or PTO separation.

7. Using position control lever (A), lower and raise implement slowly and check for any point of interference.

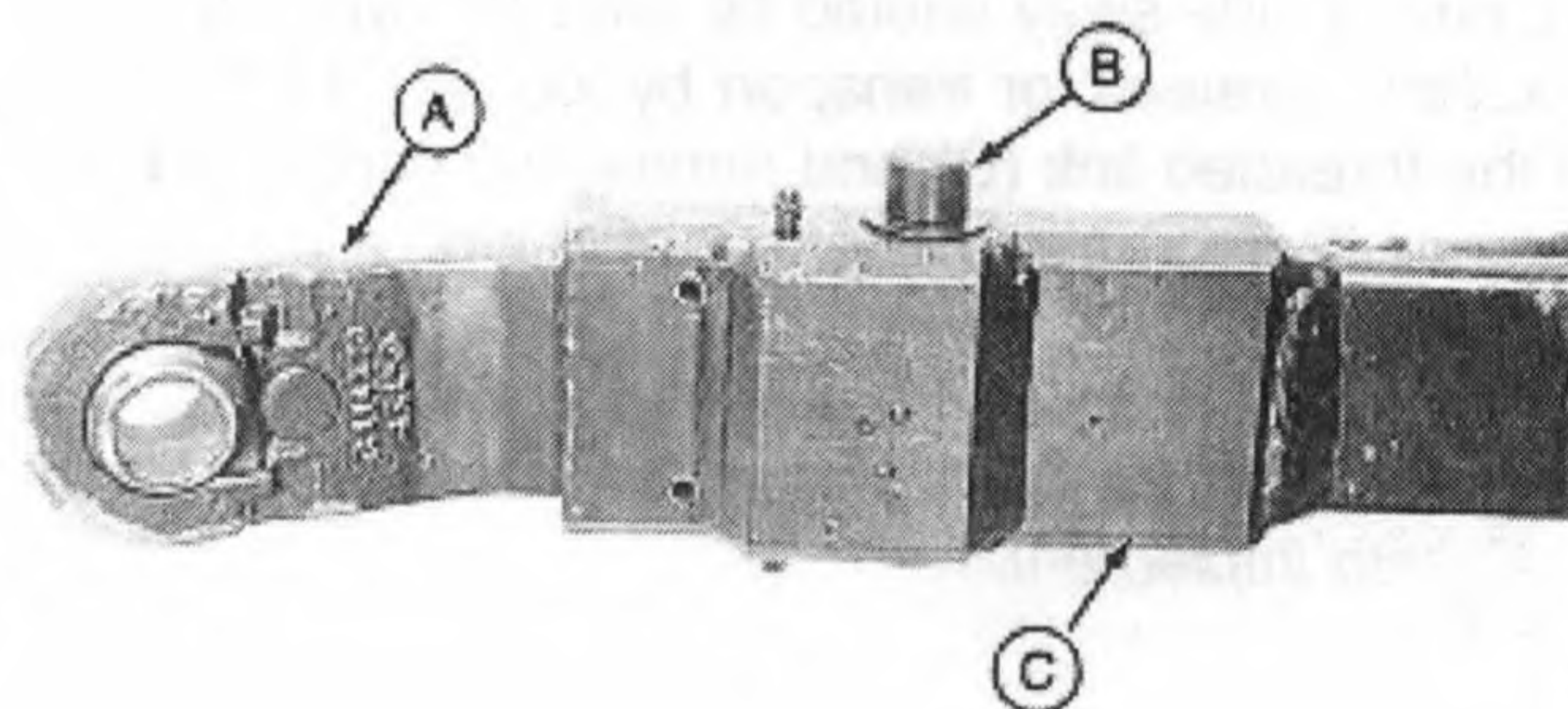
A—Position Control Lever



MX,PMIP,KA1 -19-09MAR95-3/4

If Equipped with Telescoping Draft Links:

1. Position tractor in line with hitch points. Back tractor up close to implement. Place transmission in park and stop the engine before leaving the tractor seat.
2. Move button (B) toward the center of the tractor and pull out draft link end (A). Slip draft link end over implement hitch pin. Retain with quick-lock pin. Repeat on other side.
3. Raise or lower draft arms (C) to align ends (A) with arms.
4. Slowly back up tractor to lock ends into place.
5. Perform steps 4—7 for Non-Telescoping Draft Links.



A—Draft Link End
B—Button
C—Draft Arms

MX,PMIP,KA1 -19-09MAR95-4/4

Adjusting Hitch Side Sway

NOTE: Check implement operator's manual for instruction on whether to allow side sway.

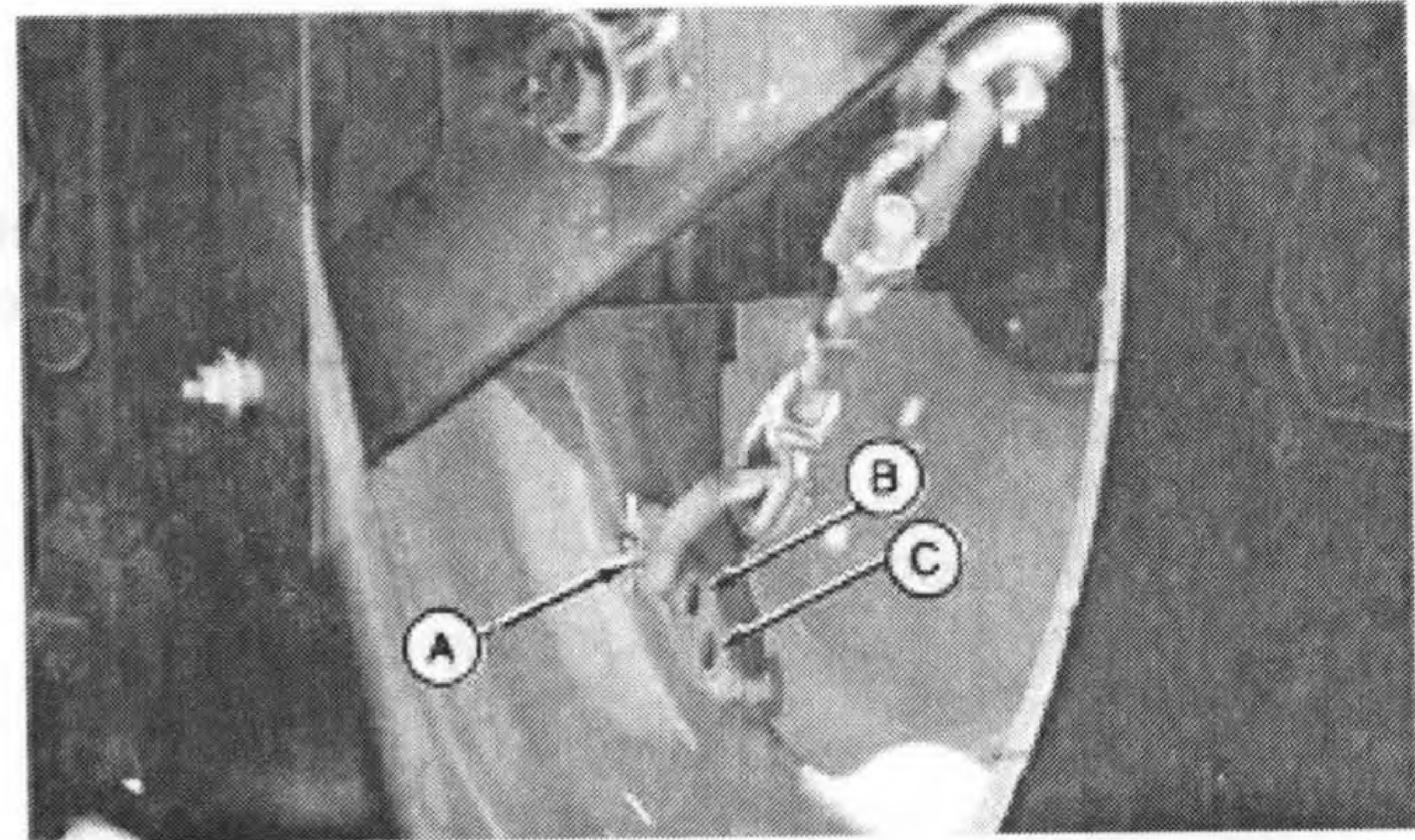
Use the upper hole (A) on the axle bracket when side-to-side movement (sway) is not desired.

The two lower holes (B) and (C) are located below the front draft link pivot so that the sway chains will tighten as the implement is raised and loosened, allowing side-to-side movement, when the implement is lowered. Use holes (B) or (C) for greater side sway for implements requiring side-to-side movement only in the lower position.

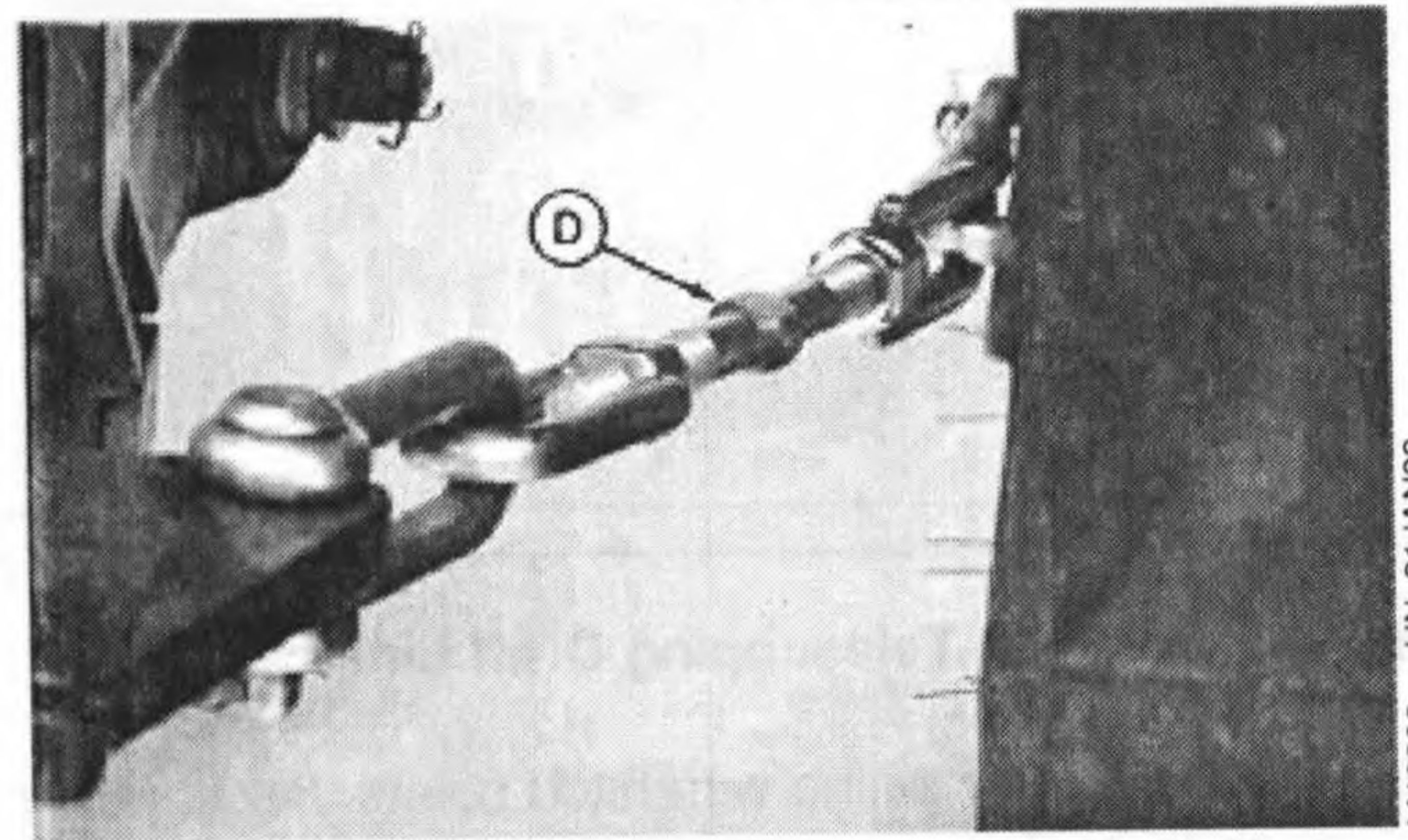
IMPORTANT: DO NOT shorten chains so short that they do not allow hitch to be raised completely. If chain prevents hitch from raising, hydraulic relief valve will open, causing excessive oil heating or pump damage.

Implement side sway should be adjusted when the rockshaft is raised for transport by loosening the jam nut on the threaded link (D) and turning the center rod to increase or decrease the length of chain.

NOTE: Use spring or rubber strap to keep unused links out of rear tires when draft links are not attached to implement.



M46397 -UN-31JAN92



M46398 -UN-31JAN92

- A—Axle Bracket Upper Hole
- B—Axle Bracket Lower Hole
- C—Axle Bracket Lower Hole
- D—Threaded Link

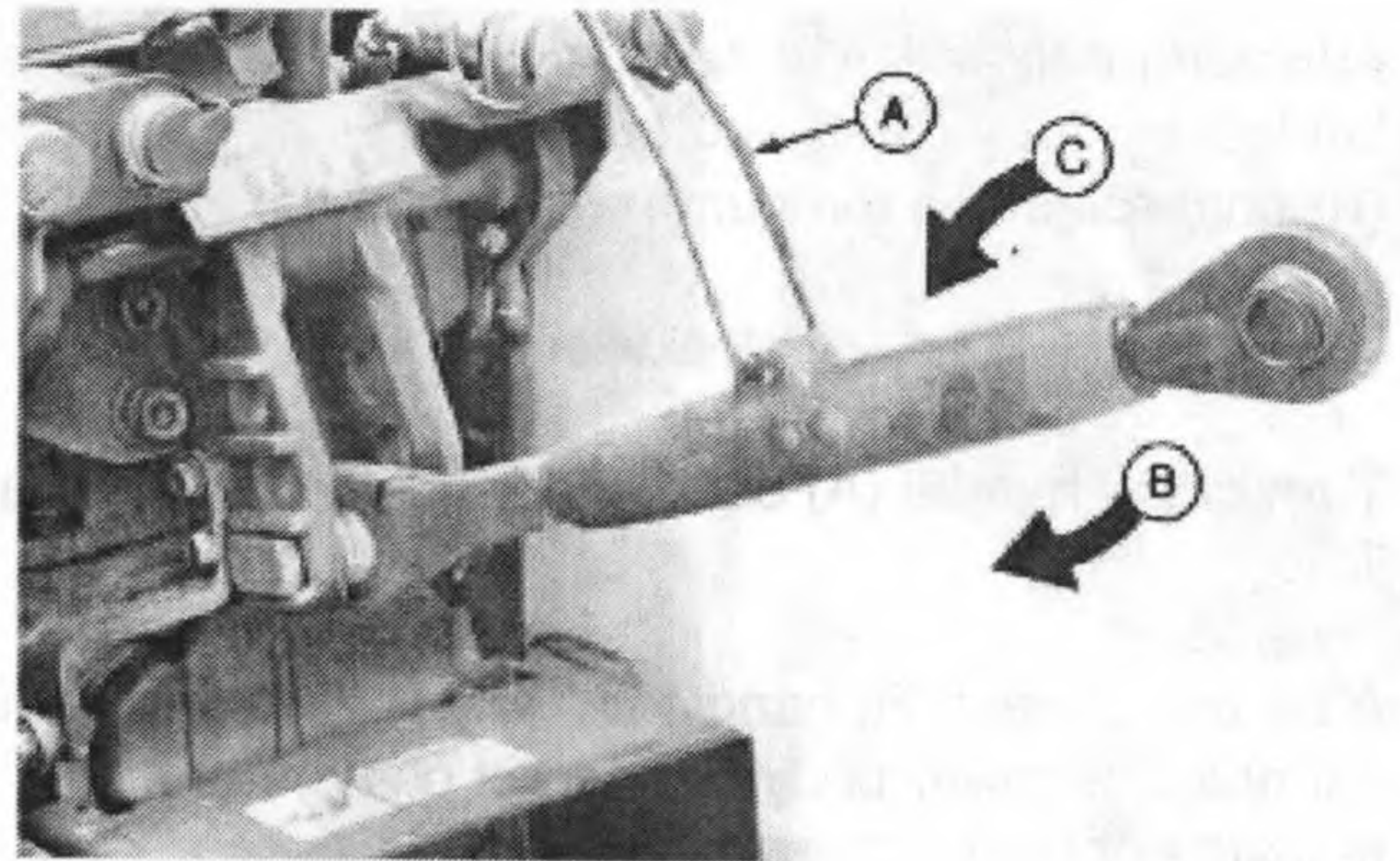
LV,5010RH,J -19-10SEP97-1/1

Leveling the Hitch

1. Lower implement to take weight off hitch.
2. Adjust center link to level implement front-to-rear. Unlatch locking clip (A). Rotate center link body clockwise (B) to lengthen center link or counterclockwise (C) to shorten it. Be sure to latch the locking clip.

IMPORTANT: DO NOT attempt to overextend center link beyond limits of locking clip or lift links past the stops. Link body threads could be damaged.

NOTE: Maximum adjustment range of the center link can only be obtained if the ends are positioned equally within the body when attached to an implement.



A—Locking Clip
B—Center Link Body Rotation
C—Center Link Rotation

M46400 -UN-31JAN92

Continued on next page

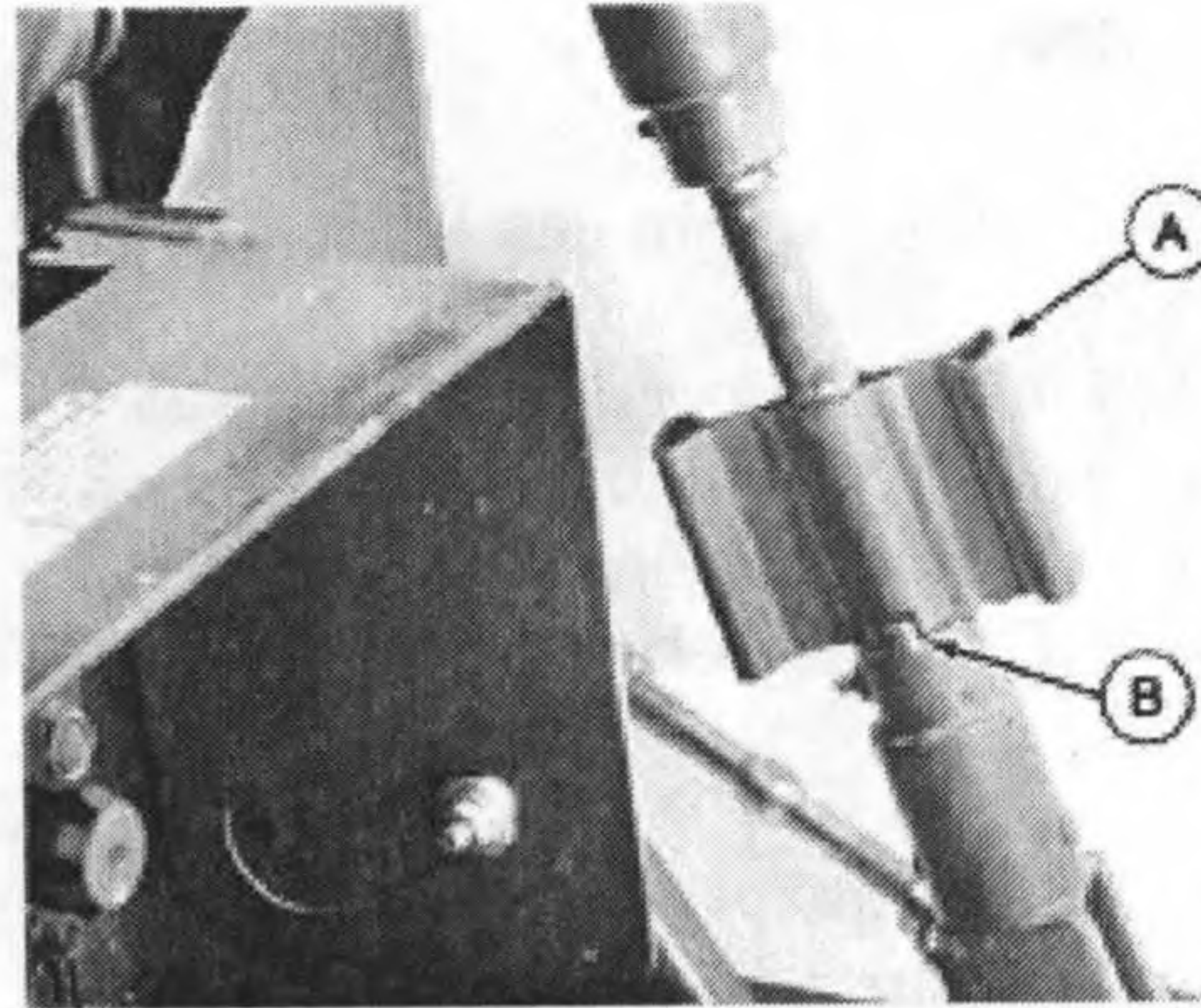
LV,5010RH,M -19-10SEP97-1/2

3. Adjust right-hand link to level implement side-to-side. Lift locking handle (A) and turn 1/4 turn to engage slot (B) onto roll-pin in the center portion of the lift link.

Turn crank handle (A) clockwise to raise draft link.

Turn crank handle (A) counterclockwise to lower draft link.

After adjustment, lift handle (A) and turn to engage slot (B) onto the lower body to prevent change of adjustment during operation.



A—Locking Handle
B—Slot

4. The left-hand lift link is also adjustable in length to accommodate two different length right-hand lift link assemblies used, depending on tire size. The following adjustments will provide optimum hitch leveling:

If equipped with a right-hand lift link, center threaded section measures 316 mm (12-7/16 in.) long, adjust the left-hand lift link to 550 mm (21-5/8 in.) from pin to pin (lateral float locked out).

If equipped with a right-hand lift link, center threaded section measures 266 mm (10-1/2 in.) long, shorten the left-hand lift link to 450 mm (17-7/16 in.).

To change the left-hand lift link length, remove the upper lift link pin and rotate the upper end assembly clockwise to shorten or counterclockwise to lengthen, and then reinstall the upper pin and locking pin.

M46399 -JUN-31JAN92

LV,5010RH,M -19-10SEP97-2/2

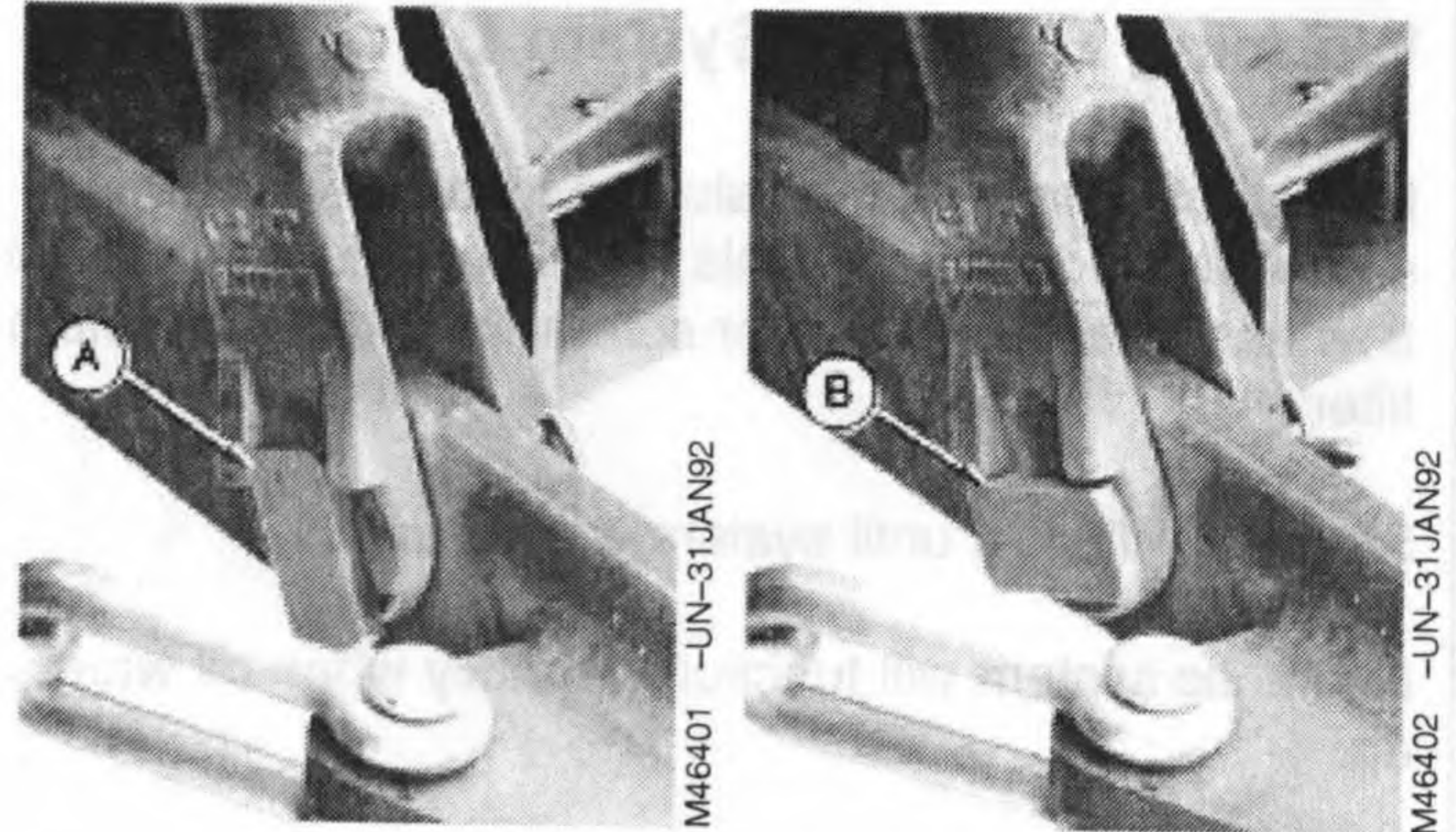
Adjusting Lateral Float

To allow the draft link to raise slightly as implement follows ground contour, place head of float pin and the rectangular washer on the inside end of the pin in a vertical position (A).

To hold implement rigid, place head of float pin and the rectangular washer in the horizontal position (B).

Use lift link pins in the float position for hitch mounted implements such as a cultivator or mower, which have ground gauging skids or wheels which may cause the implement to twist relative to the tractor.

Use the rigid position for implements such as plows and ground engaging implements that should not twist relative to the tractor.



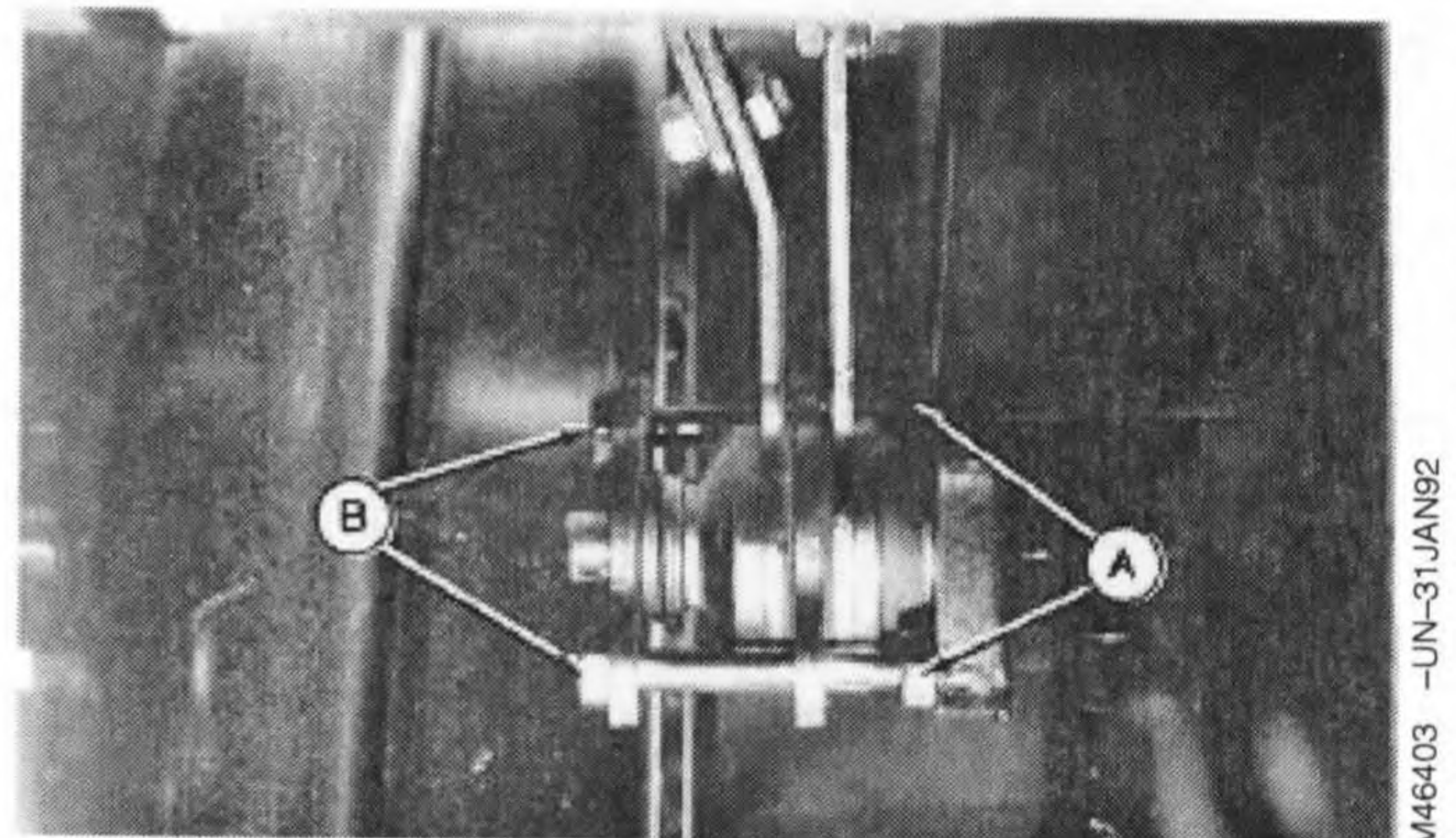
A—Pin in Vertical Position
B—Pin in Horizontal Position

LV,5010RH,E -19-03JUN97-1/1

Adjusting Rockshaft Control Lever Friction

If rockshaft position control lever or draft control lever do not stay in set position, increase lever friction by loosening the two jam nuts (A), tightening the two adjusting bolts (B) equally until the proper friction is obtained. Tighten jam nuts (A) again after the adjustment is complete.

- A—Jam Nuts (2 used)
- B—Adjusting Bolts (2 used)



MX,PMIP,PA1 -19-24JUL95-1/1

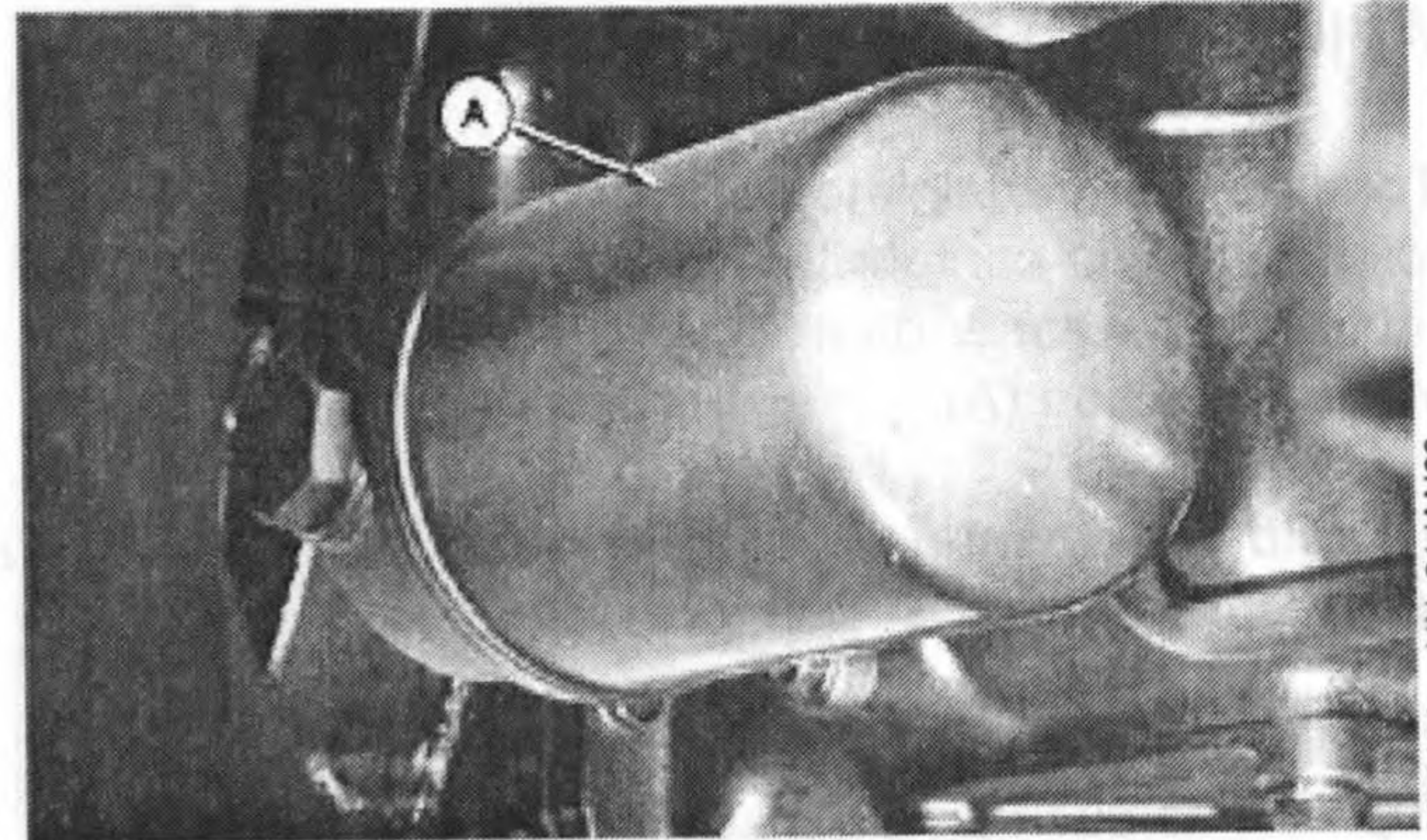
Warming Hydraulic System Oil

Hydraulic system may be slow to function when tractor is started in cold weather. This is because cold oil will not flow easily through the filter screen or hydraulic system filter (A).

Steering will slow until system warms up.

Hydraulic system will function normally when oil warms up.

A—Hydraulic Oil Filter

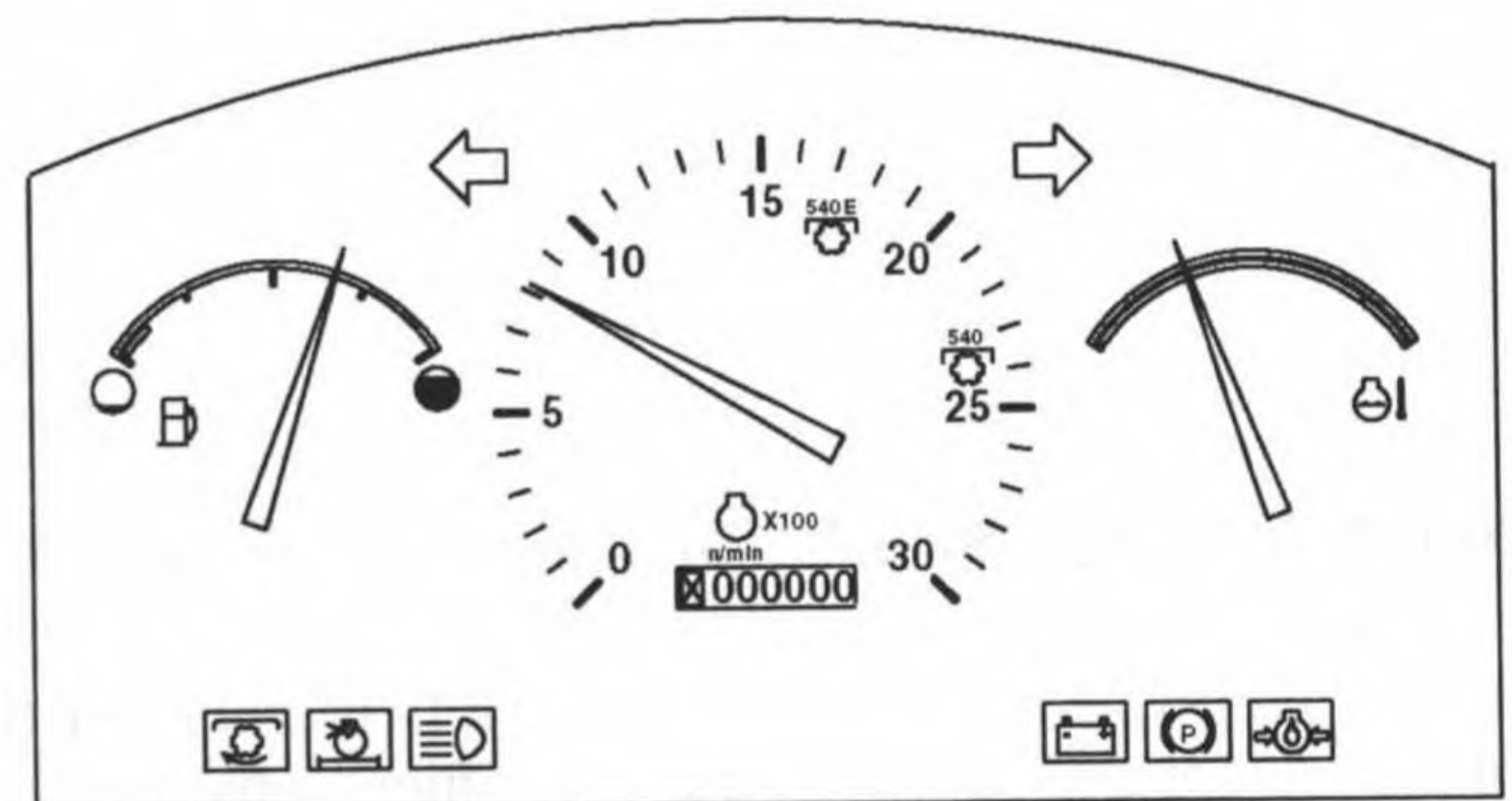


M46404 -UN-31JAN92

LV,5010RH,G -19-29AUG97-1/2

IMPORTANT: To prevent damaging hydraulic pump or relief valve, **DO NOT** exceed two to three minutes warm up time.

1. Depress clutch pedal, start engine and idle at about 1000 rpm.
2. Turn and hold steering wheel in full left or right turn.



LV1725 -UN-29MAY97

LV,5010RH,G -19-29AUG97-2/2

Remote Hydraulic Cylinders

Use Correct Hose Tips

If your tractor is equipped with a selective control valve (SCV), the couplers receptacles accept a standard hose tip as recommended by ISO¹ and SAE². Adapters are available to allow connecting the older John Deere hose tips to the ISO couplers on your tractor.

¹*International Standards Organization*

²*Society of Automotive Engineers*

MX,RHIP,AA -19-18MAR92-1/1

Control Lever and Coupler Identification

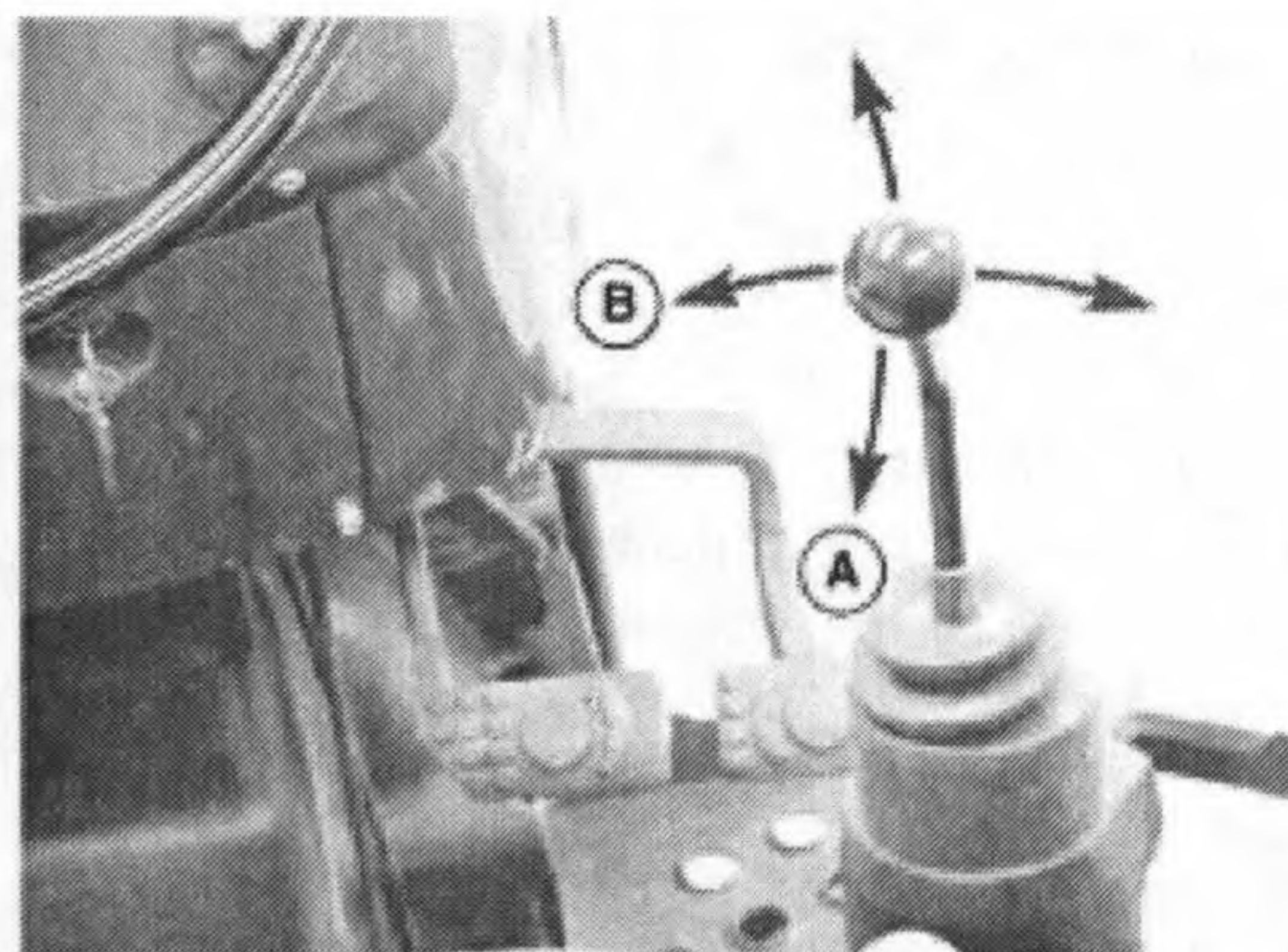
The joystick has two basic directions of movement to control oil flow to the couplers.

Movement fore and aft (A) operates the upper left coupler (No. 1) receptacles (C).

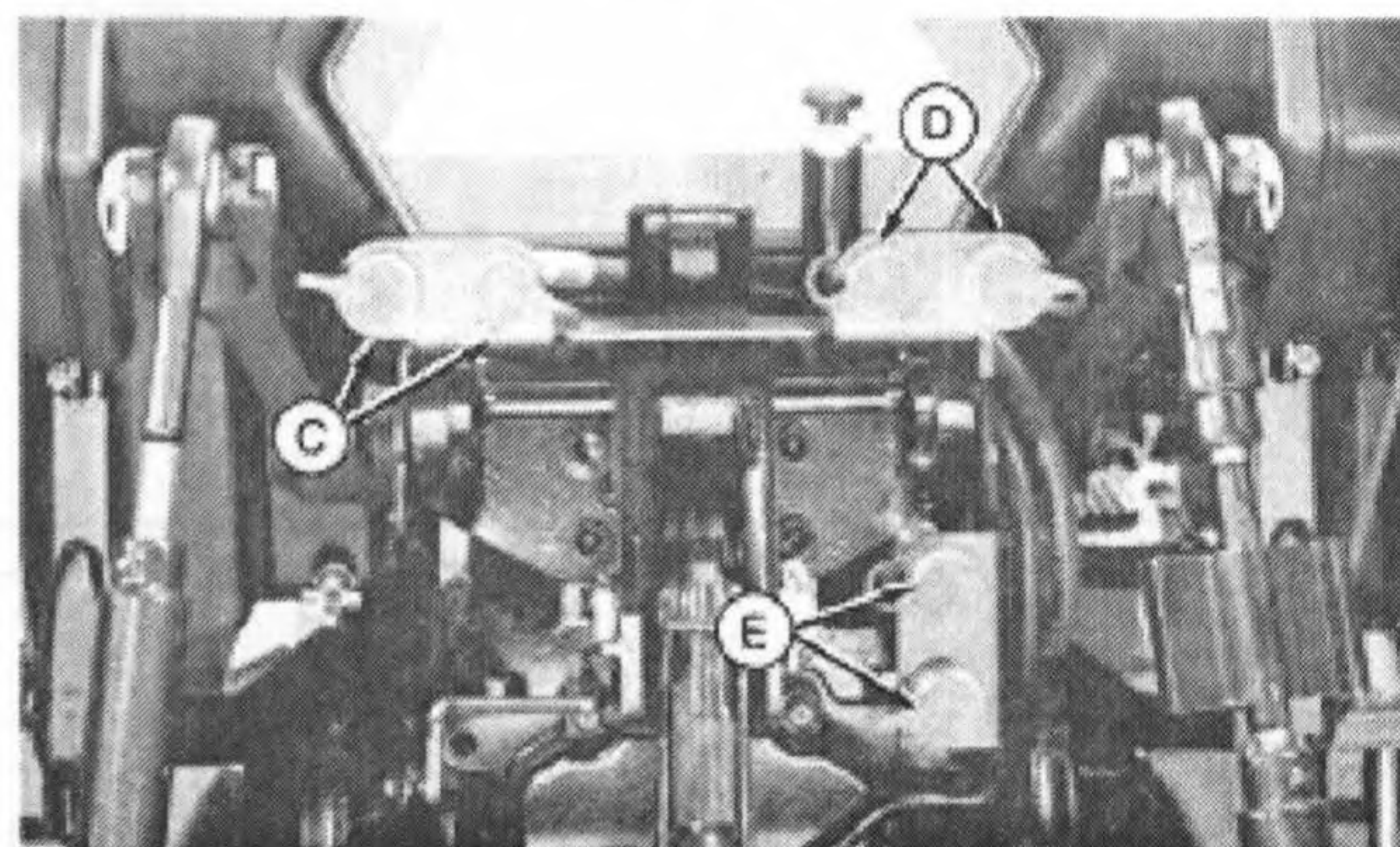
Movement inward and outward (B) operates the upper right coupler (No. 2) receptacles (D).

Tractors equipped with three SCVs have the control lever (F) located to the right of the rockshaft levers which operates the lower coupler (No. 3) receptacles (E).

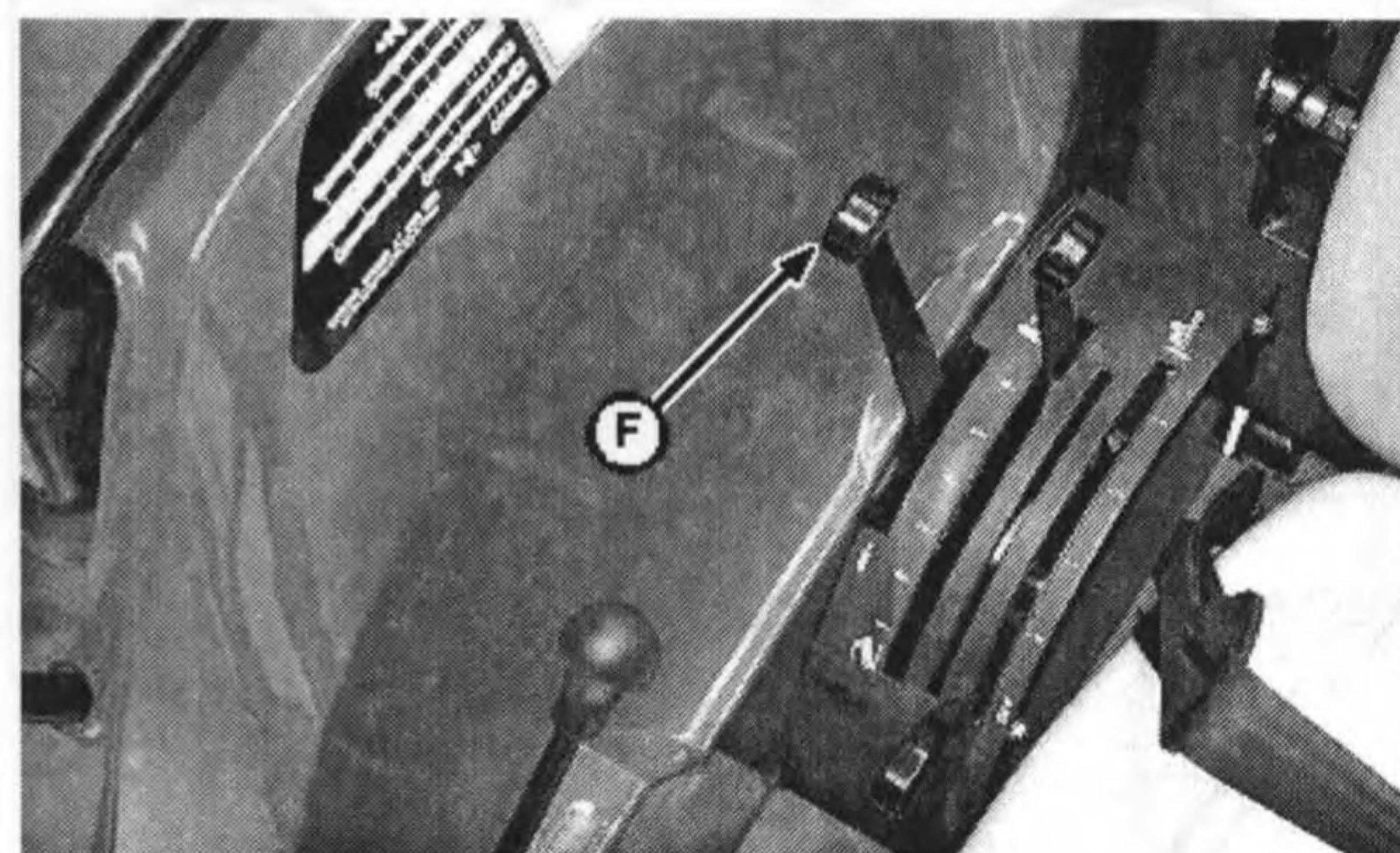
- A—Fore and Aft
- B—Inward and Outward
- C—No. 1 Receptacles
- D—No. 2 Receptacles
- E—No. 3 Receptacles
- F—Control Lever



LV1508 -UN-19JAN96



M46406 -UN-31JAN92



LV1742 -UN-06JUN97

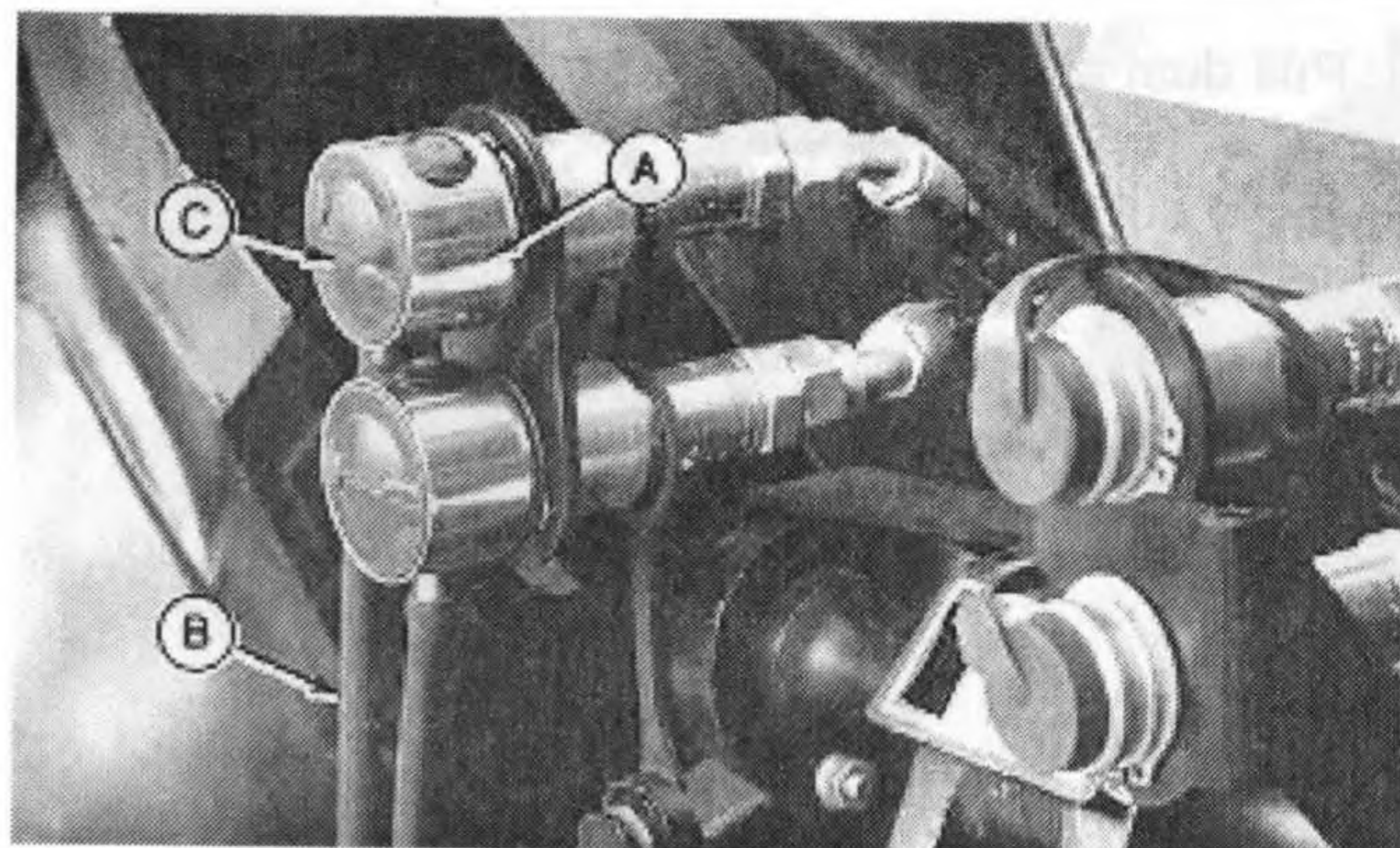
LV,5010RC,A -19-27MAY99-1/1

Installing Remote Outlet Oil Manifolds (Optional)

Remote outlet oil manifolds (A) attach directly to couplers, to keep hose connectors clean, by draining excess oil away through hoses (B).

Push hydraulic hose tips through boots (C), into couplers, when making hose connections.

A—Outlet Oil Manifolds
B—Hydraulic Hoses
C—Boots



LV762 -UN-25JUN94

LV,5400NRC,B2 -19-06JUN96-1/1

Connecting Cylinder Hoses

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

1. Remove dust caps (if equipped) from hose end.



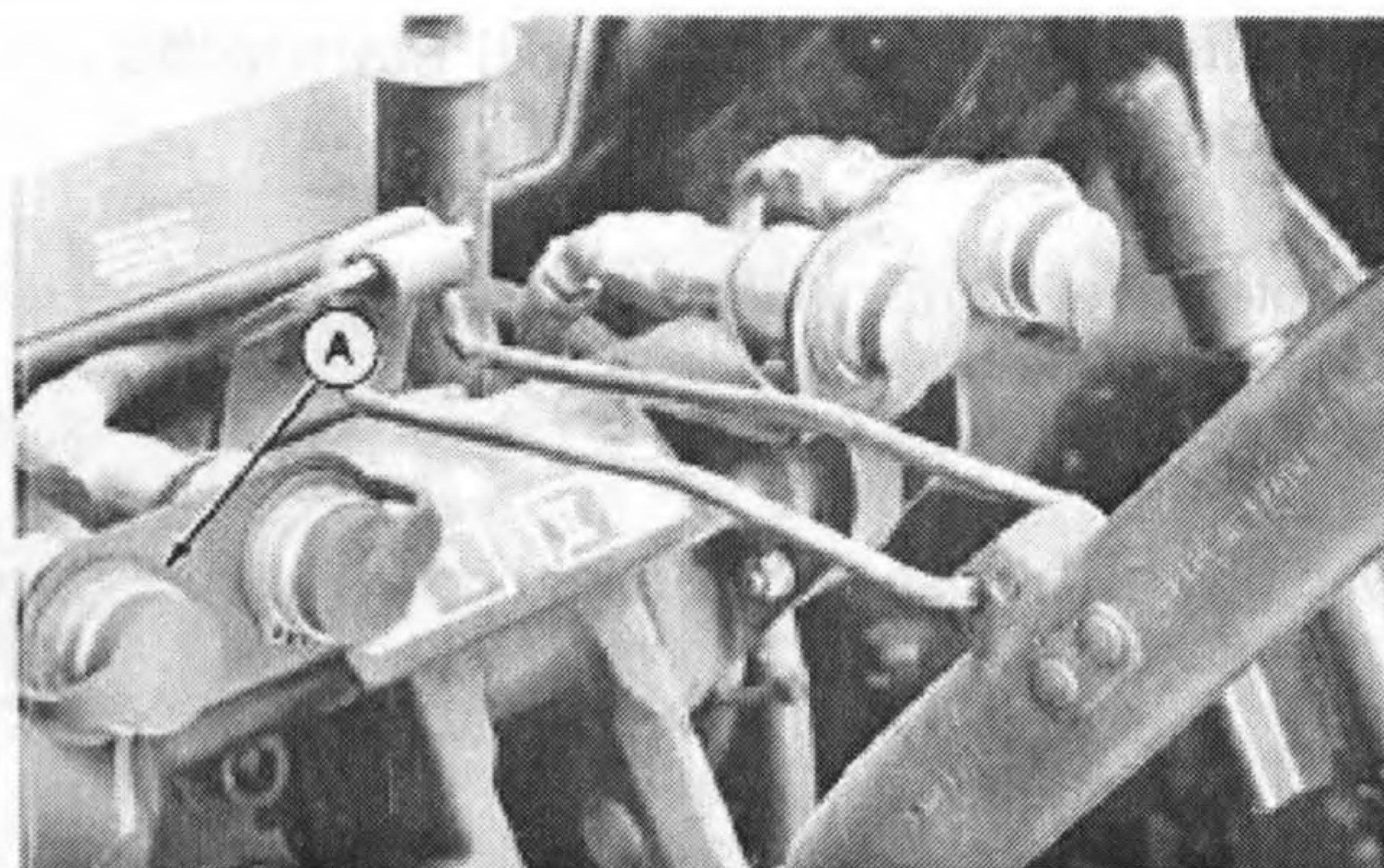
X9811 -UN-23AUG88

Continued on next page

LV,5010RC,B -19-09SEP97-1/4

2. Pull dust plug (A) from couplers.
3. Make sure hose end and coupler receptacles are clean.

A—Dust Plug

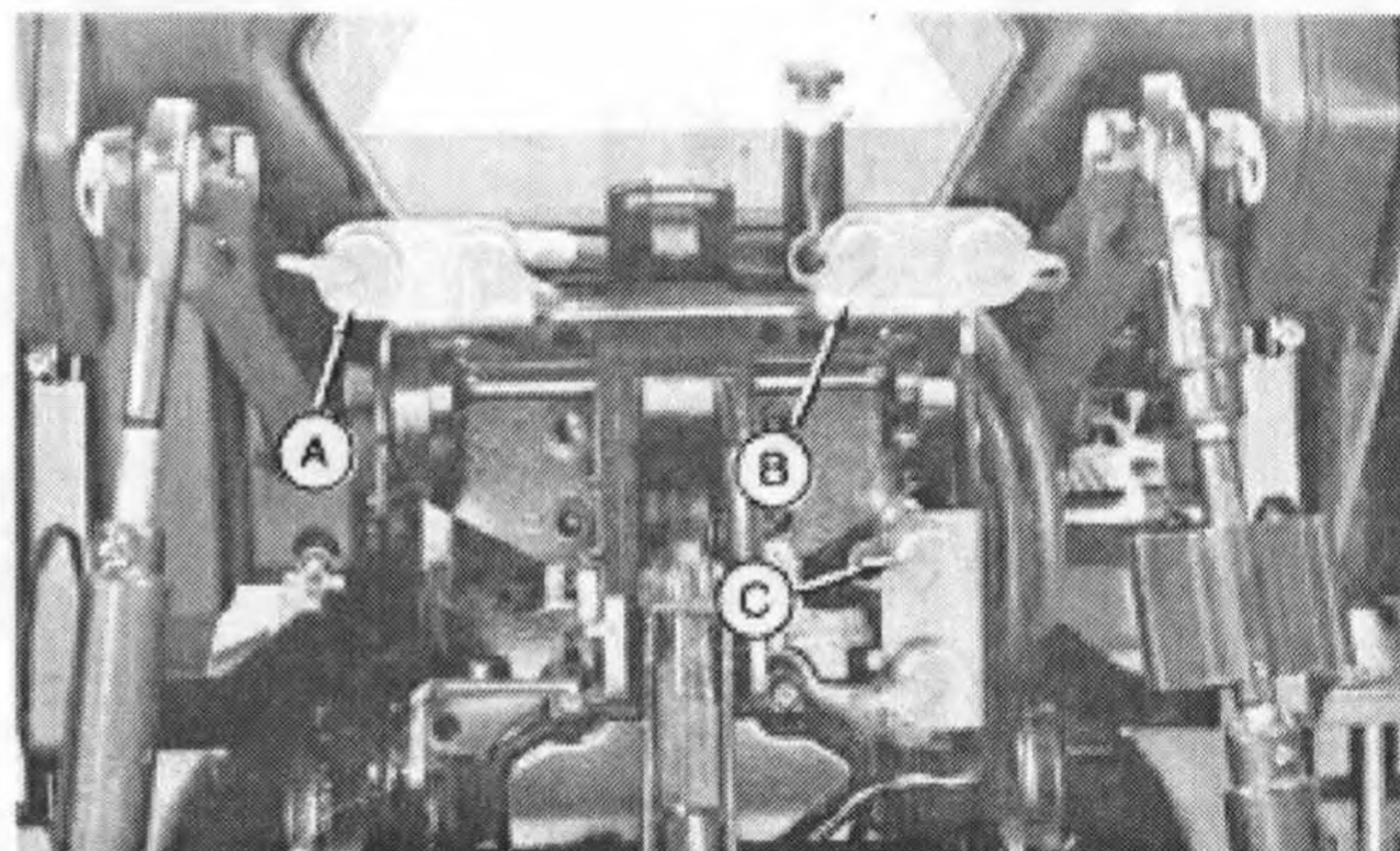


LV,5010RC,B -19-09SEP97-2/4

M46409 -UN-31JAN92

4. Check hoses to see which is used for extending cylinder. This hose must be connected to a coupler receptacle (A), (B) or (C) in order for cylinder to extend when SCV levers are moved rearward or inward.

A—Coupler Receptacle
B—Coupler Receptacle
C—Coupler Receptacle



LV,5010RC,B -19-09SEP97-3/4

M46407 -UN-31JAN92



CAUTION: Hydraulic hoses can fail due to physical damage, kinks, age and exposure. Check hoses regularly. Replace damaged hoses.

5. To connect each hose, push hose tip firmly into coupler receptacle. Pull lightly on hose to make sure positive connection was made.



LV,5010RC,B -19-09SEP97-4/4

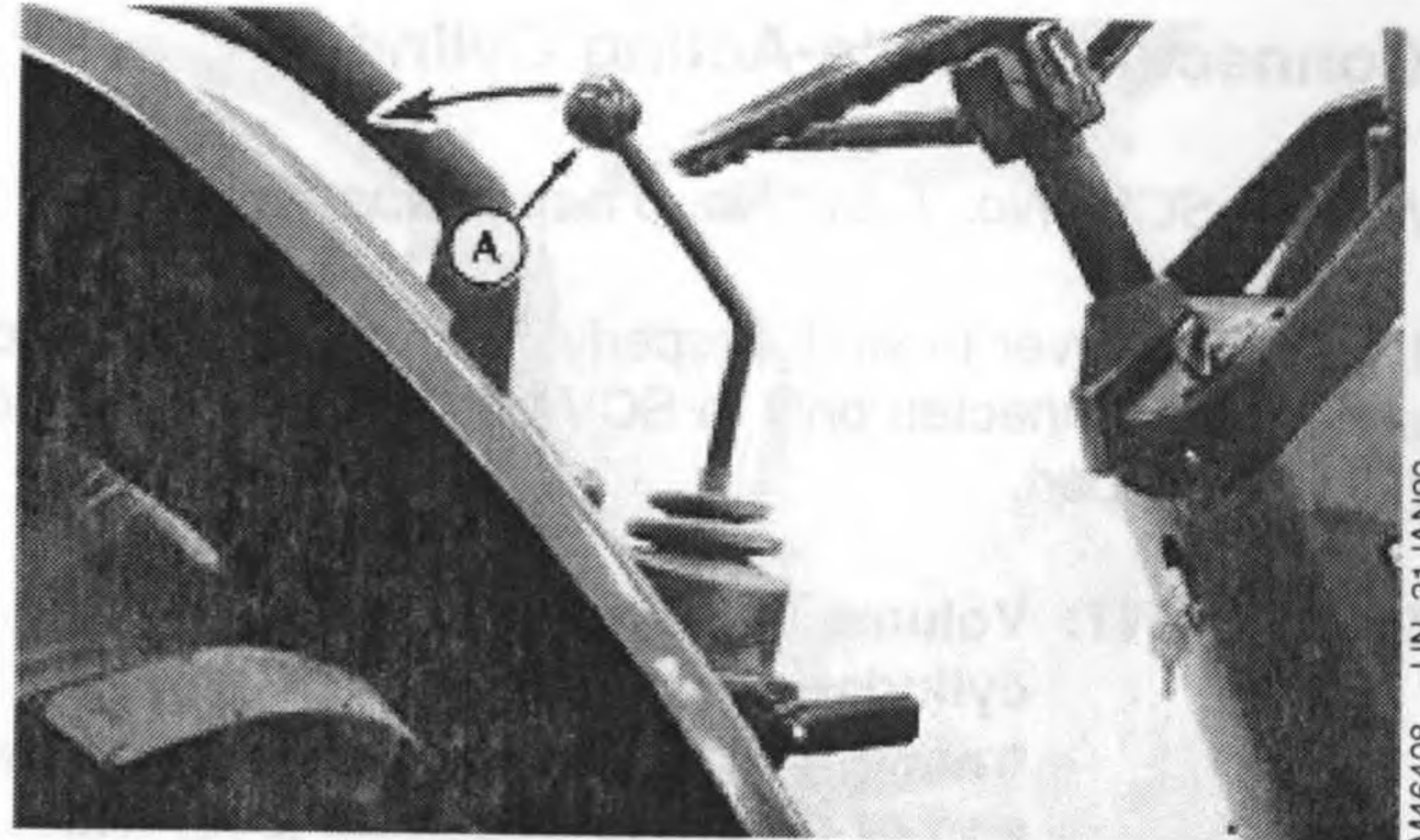
M47218 -UN-29JAN92

Connecting Hose Under Pressure

IMPORTANT: Implement must be raised slightly, by pulling back on lever (A) to reset coupler check valves, before it can be lowered.

If hoses should accidentally pull from tractor during use, clean hose tip and coupler receptacle. Hoses can be reinstalled as previously described with minimal loss of oil.

A—Lever



M46408 -UN-31JAN92

MX,RHIP,EA1 -19-21APR94-1/1

Connecting Single-Acting Cylinder

NOTE: SCVs No. 1 and No. 3 have "Float" positions.

In order for lever to work properly, a single-acting cylinder should be connected only to SCV outlet No. 1 (A) or No. 3 (C), if equipped.

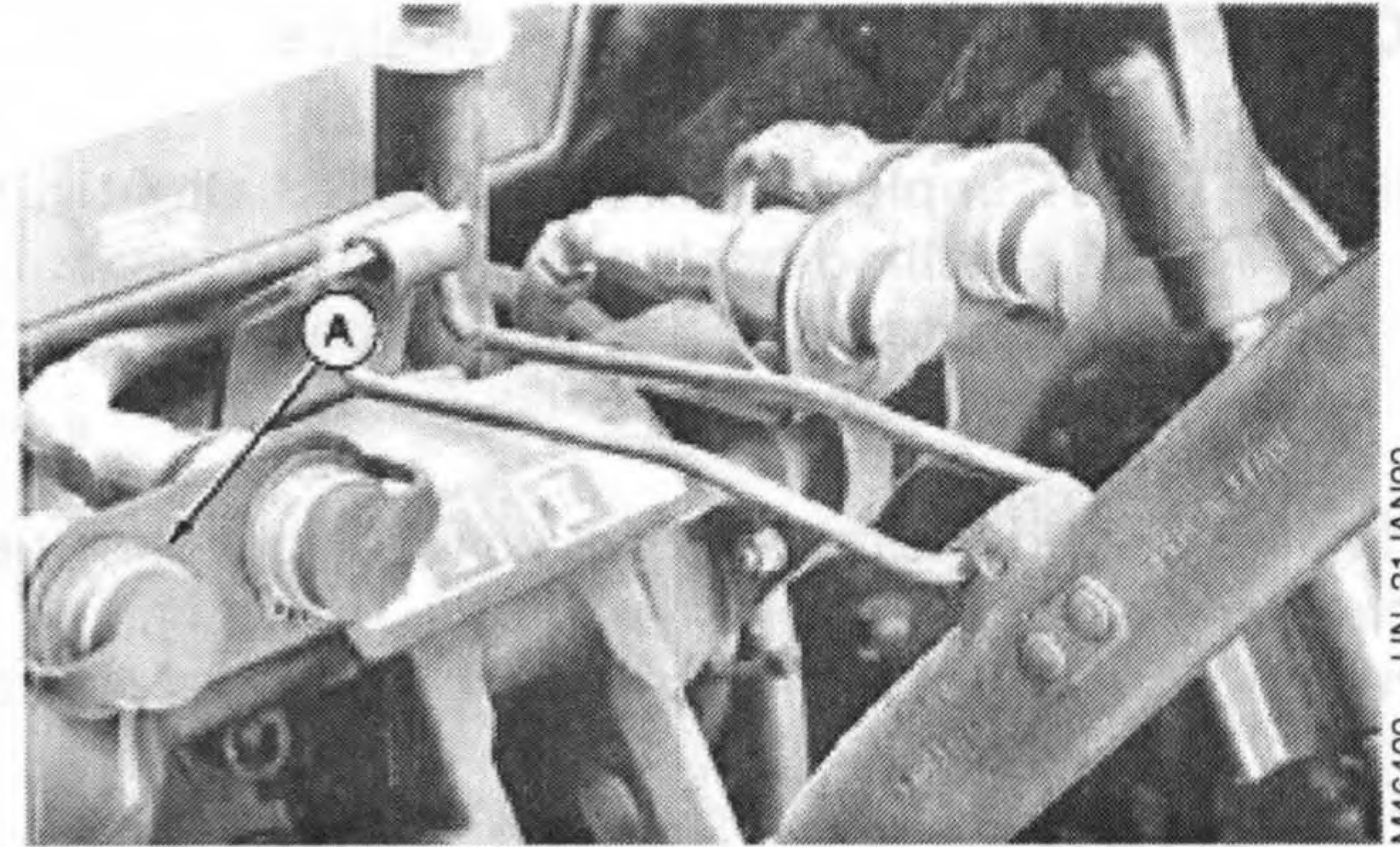
IMPORTANT: Volume of oil required to extend cylinder must not lower transmission-hydraulic oil level below end of dipstick. Check oil level with cylinder fully extended.

Push SCV No. 1 control lever (B) full forward to use "float" position to lower cylinder.

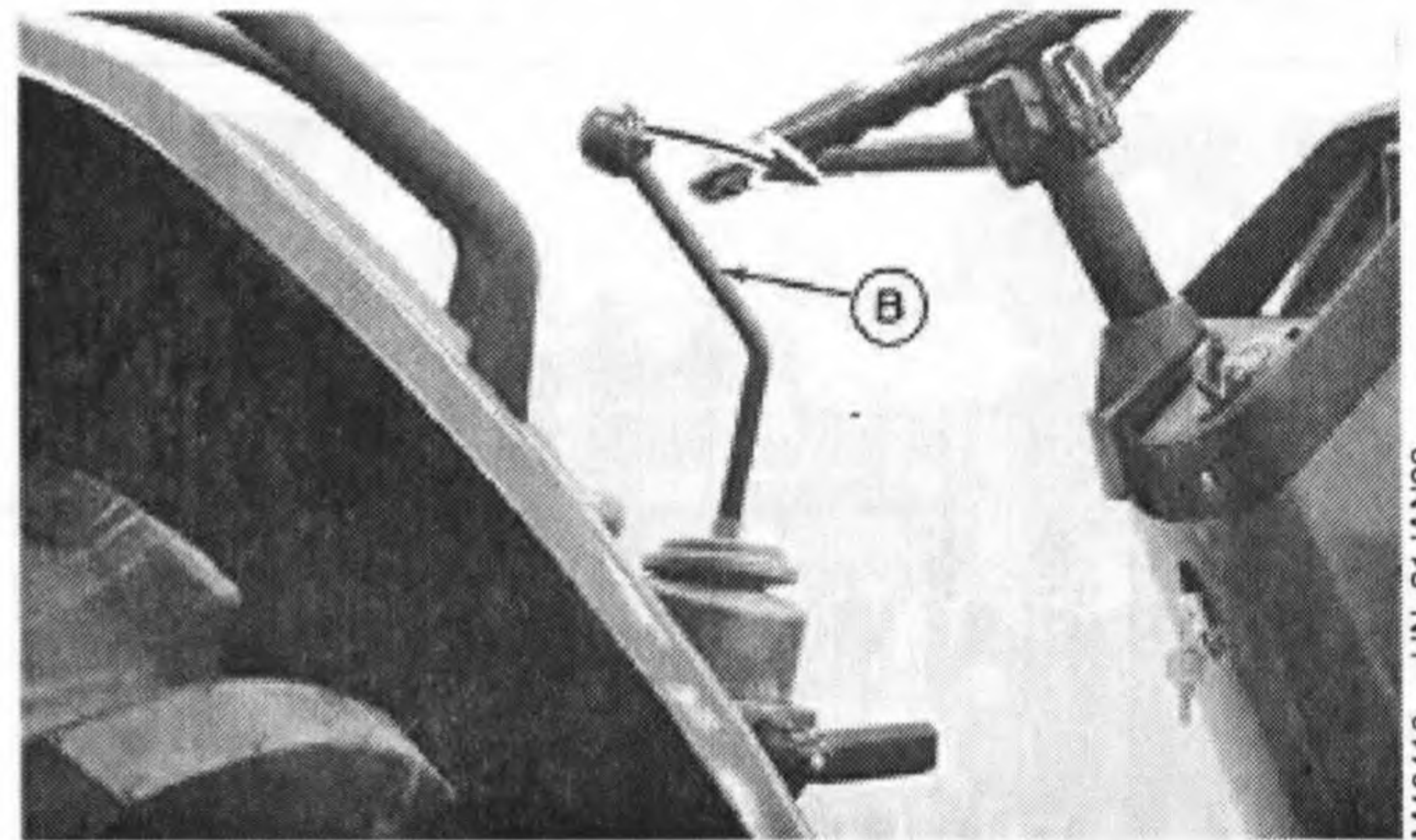
If equipped with SCV No. 3, push control lever (C) full forward to use "float" feature.

"Float" position allows a cylinder to extend and retract freely and uses no engine power.

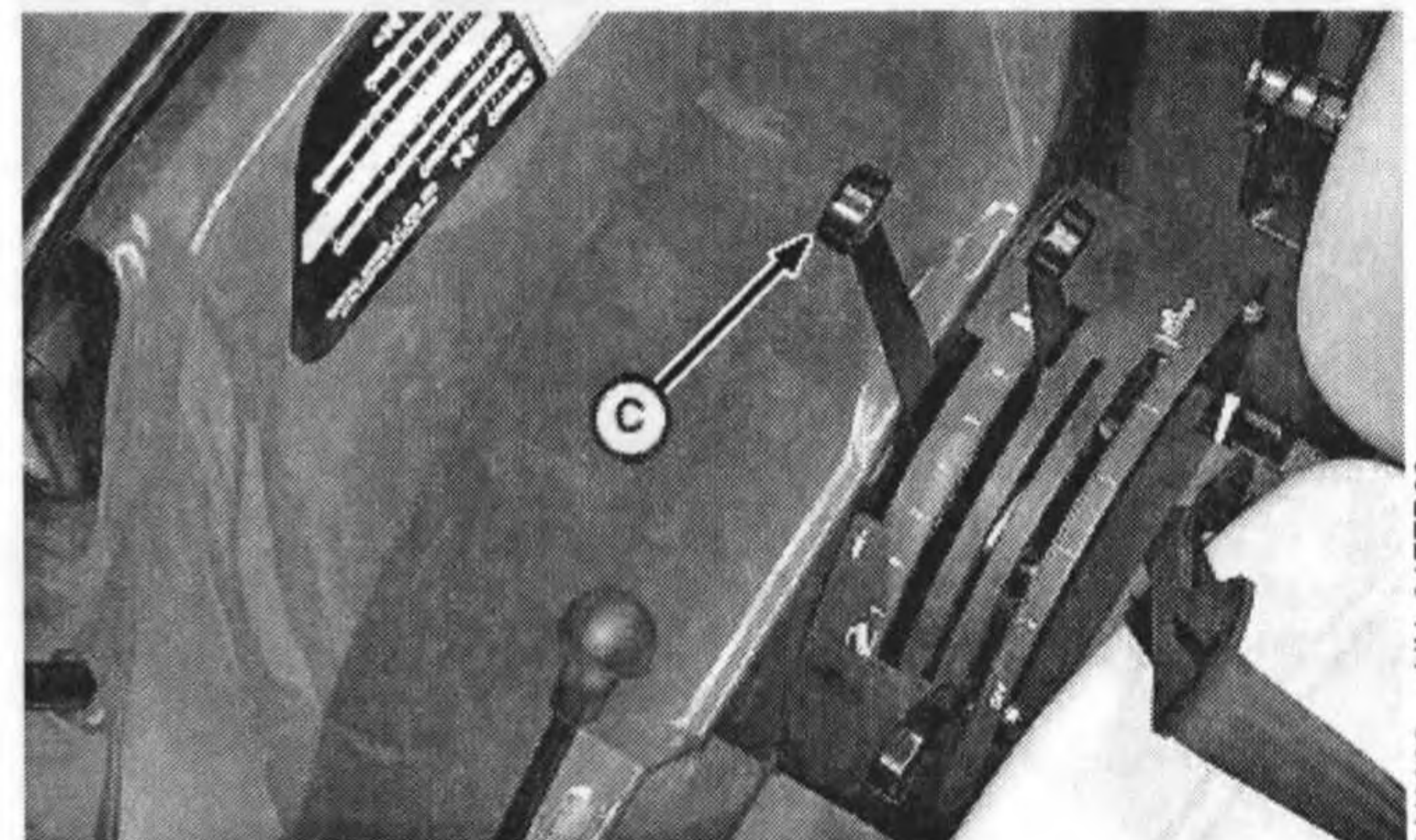
- A—SCV Outlet No. 1
- B—SCV No. 1 Control Lever
- C—SCV No. 3 Control Lever—If Equipped



M46409 -UN-31JAN92



M46410 -UN-31JAN92



LV2008 -UN-24FEB99

SCV No. 3—If Equipped

MX,RHIP,FA2 -19-09AUG99-1/1

Correcting Reversed Cylinder Response



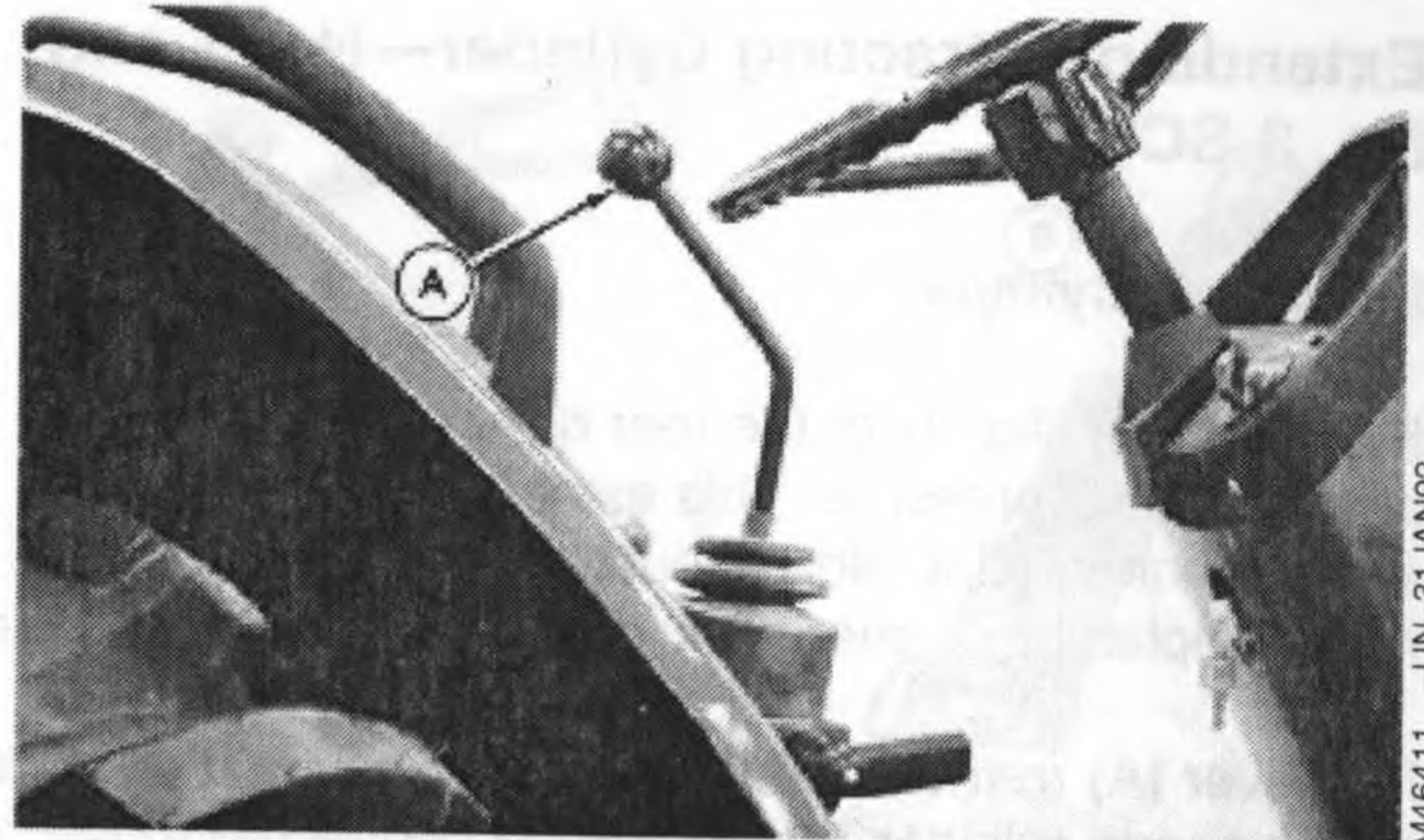
CAUTION: If cylinder response is reversed, extending when it should retract, reverse cylinder hose connections at coupler.

MX,RHIP,IA1 -19-24JUL95-1/1

Neutral Lever Position

Spring pressure returns lever (A) to a centered position (except when lever is fully forward in the "Float" position). When the joystick control lever is in the centered position, the remote cylinder is hydraulically locked in position.

A—Control Lever



MX,RHIP,JA1 -19-21APR94-1/1

Extending/Retracting Cylinder—No. 2 SCV

Extending Cylinder

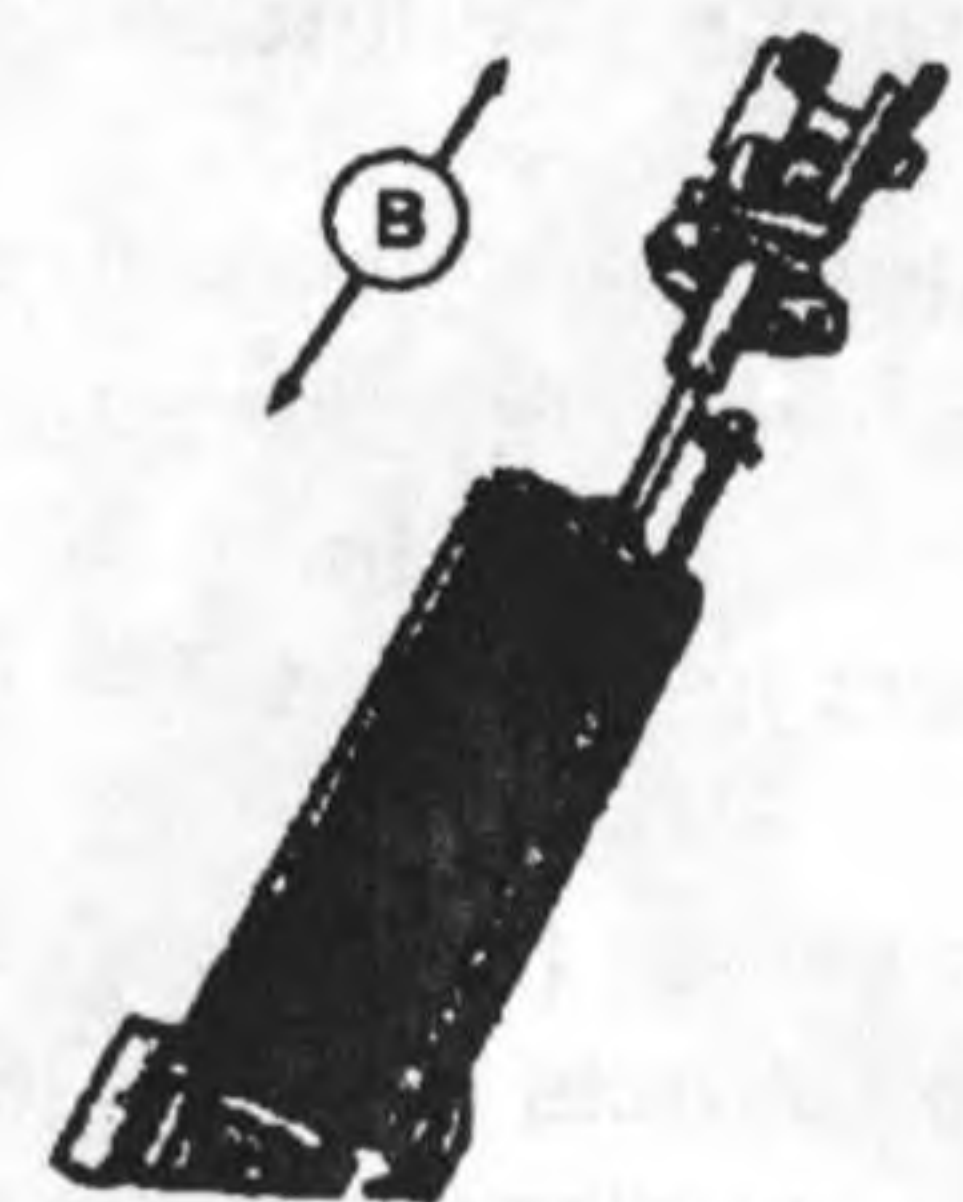
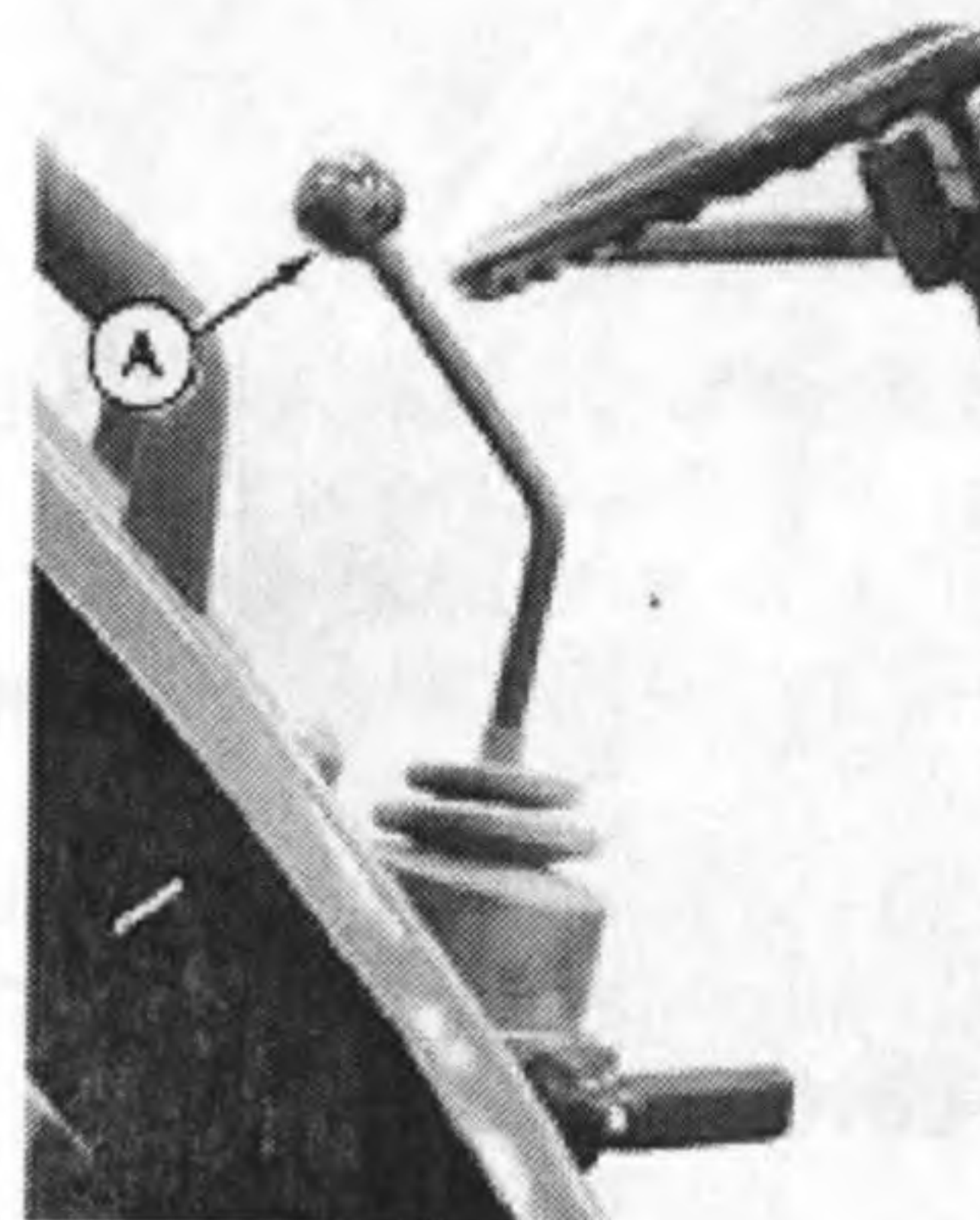
Moving lever (A) outward against spring pressure will retract a cylinder connected to the No. 2 SCV coupler receptacles. This cylinder is normally connected to the bucket cylinder and dumps the bucket.

Retracting Cylinder

Moving lever (A) inward against spring pressure will extend cylinders connected to the No. 2 couplers. This cylinder is normally connected to the bucket cylinder and rolls the bucket upward.

Regenerative Function

Moving lever (A) outward to last detent will provide faster loader bucket dump and reduces cavitation. Lever will return to neutral by valve spring.



A—Control Lever
B—Extend Cylinder

LV,5010RC,C -19-11AUG99-1/1

Extending/Retracting Cylinder—No. 1 and No. 3 SCV

Extending Cylinder

Pull lever (A) slightly to the rear of neutral and hold it against spring pressure. This extends cylinder (B) (up arrow) connected to No. 1 couplers and in most cases raises implement. Lever returns to neutral when released.

Pull lever (A) rearward and hold it against spring pressure. This extends cylinder (B) (up arrow) connected to No. 3 couplers in most cases. Lever returns to neutral when released.

Retracting Cylinder

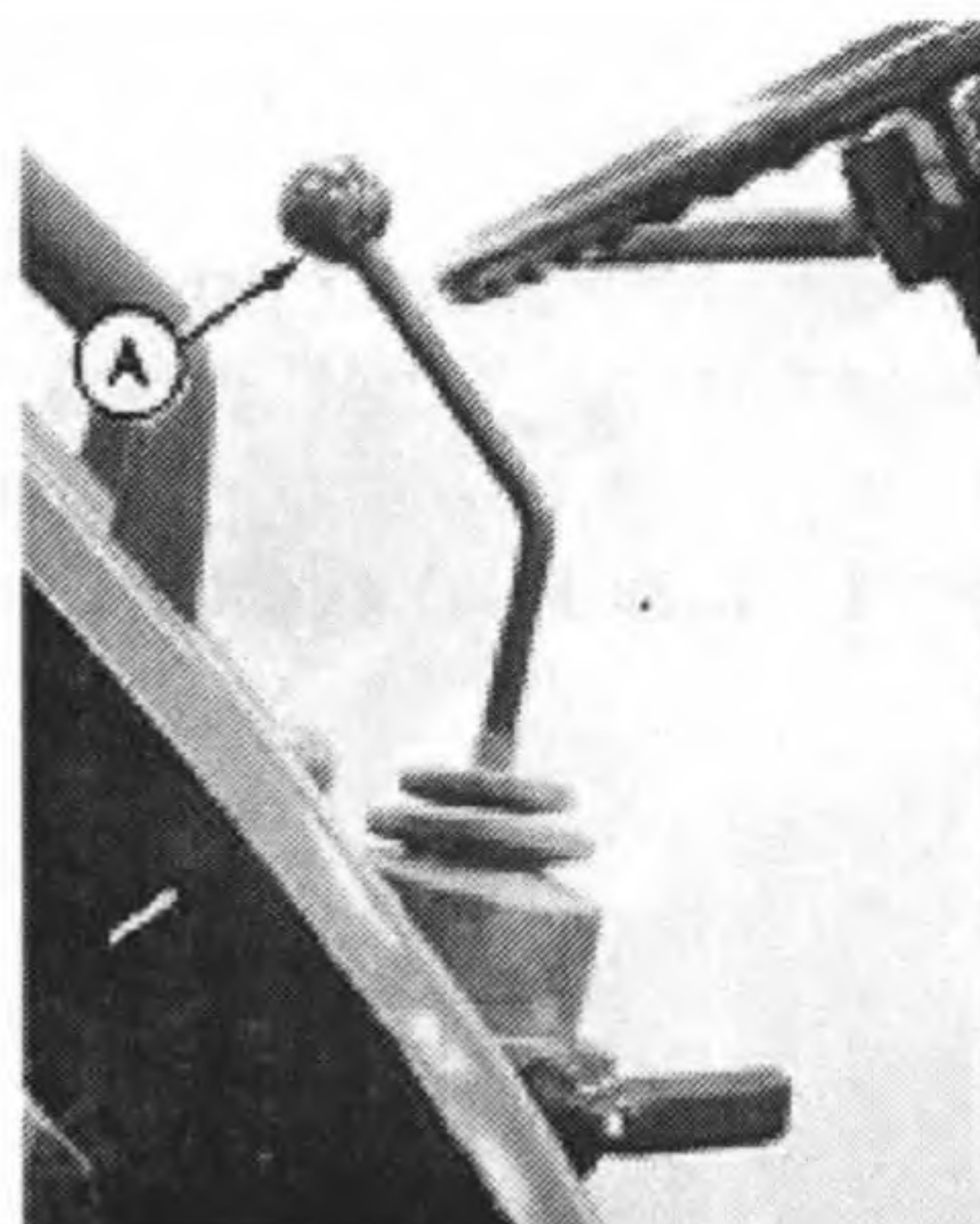
Push lever (A) slightly forward and hold it against spring pressure. This retracts cylinder (B) (the down arrow) connected to No. 1 SCV couplers and in most cases lowers implement. Lever returns to neutral when released.

Push lever (A) forward and hold it against spring pressure. This retracts cylinder (B) (down arrow) connected to No. 3 SCV couplers in most cases. Lever returns to neutral when released.

Float Position

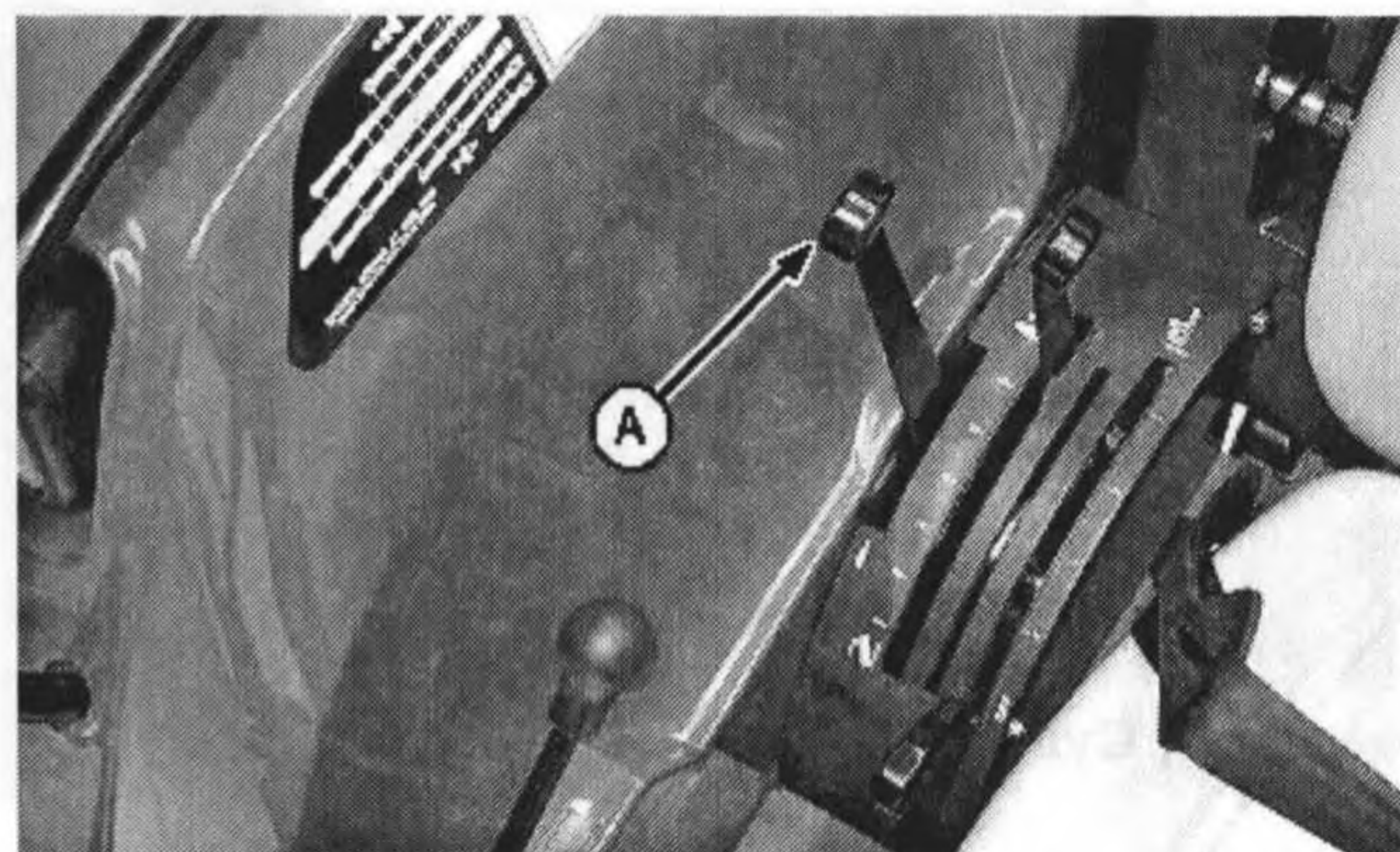
Push lever forward into detent to operate Float feature. Float operation allows cylinder to extend and retract freely, such as when an implement follows ground contour.

A—Control Levers
B—Extend Cylinder



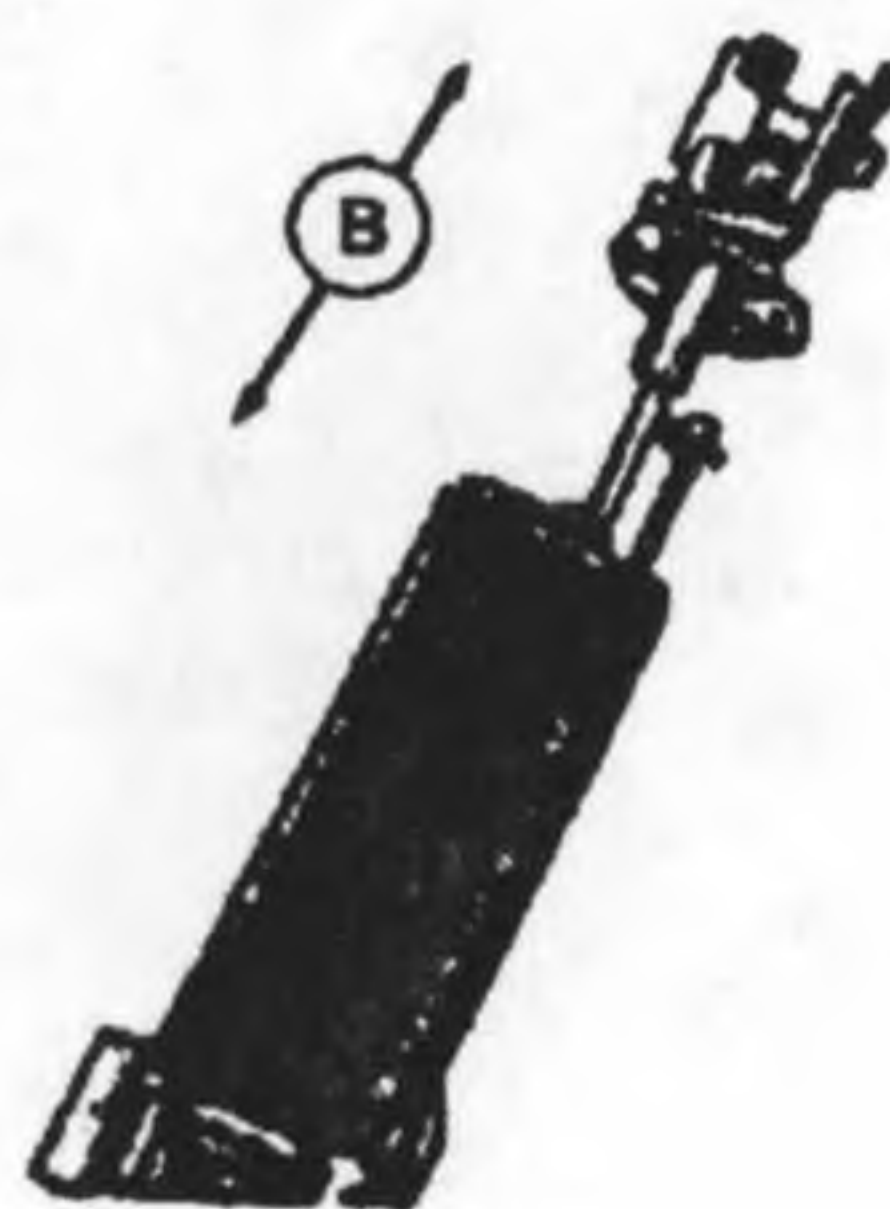
No. 1 SCV Control Lever

M46412 -UN-31JAN92



No. 3 SCV Control Lever

LV1974 -UN-06JUN97



M47174 -UN-31JAN92

Using Implement Float (SCV No. 1 and No. 3 Only)

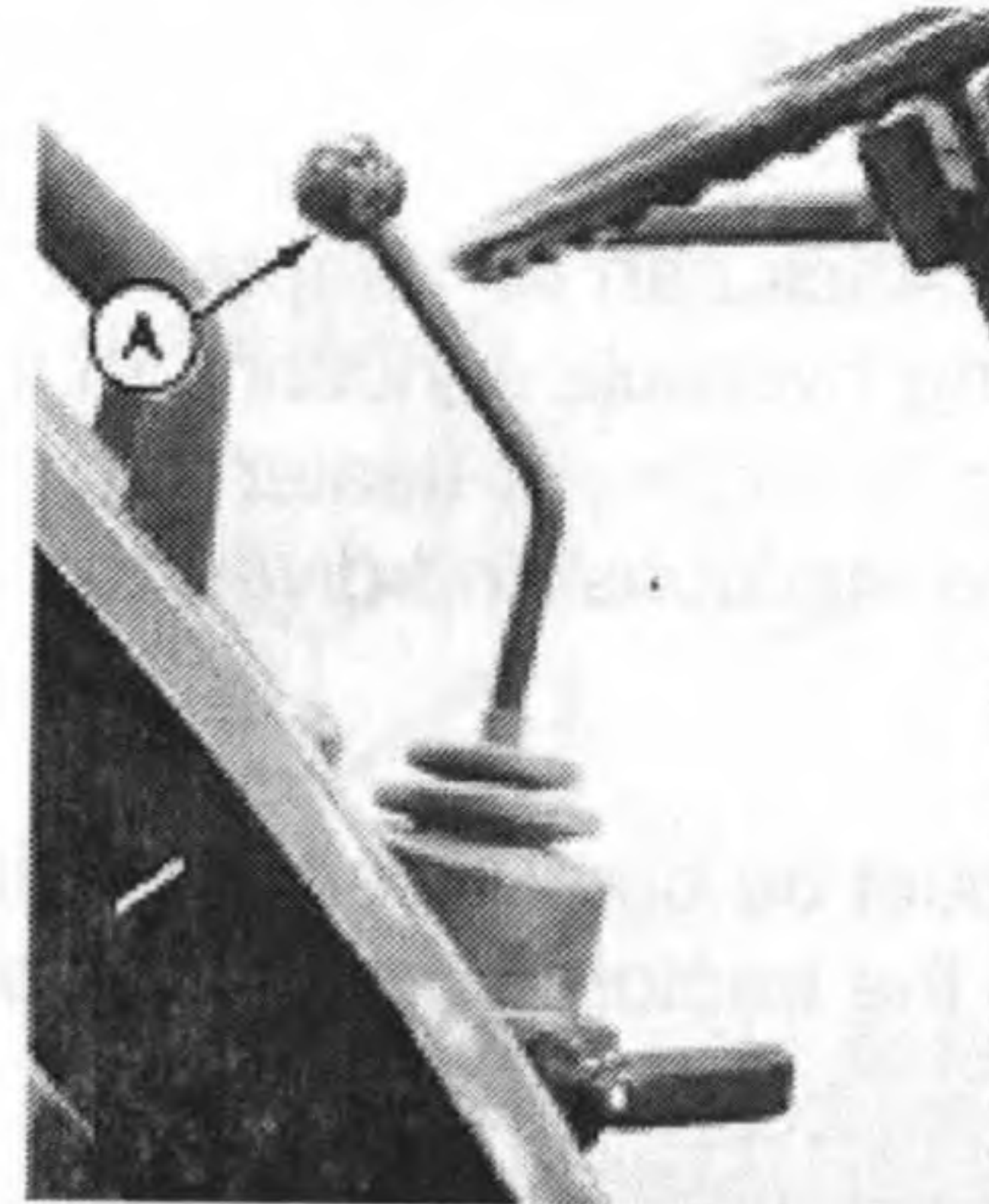
The control levers for SCV No. 1 and No. 3 both have a "Float" position. Push SCV No. 1 control lever (A) or SCV No. 3 lever (C) all the way forward to "Float" detent position.

NOTE: Lever must overcome strong spring resistance between retract and "Float" positions.

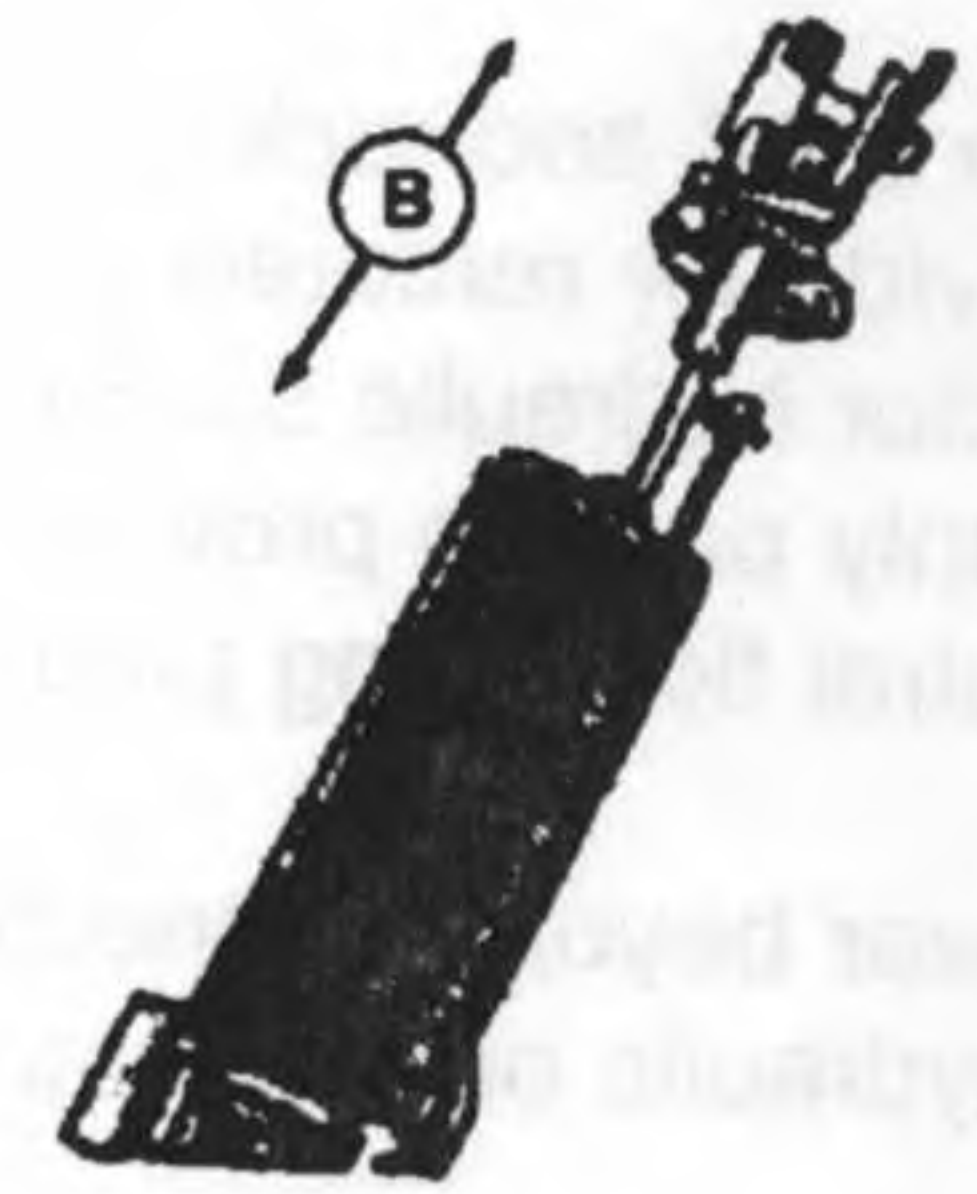
In "Float", cylinder is allowed to extend or retract freely (B).

IMPORTANT: When "Float" is not needed, move lever back to neutral position to prevent accidental use of "Float".

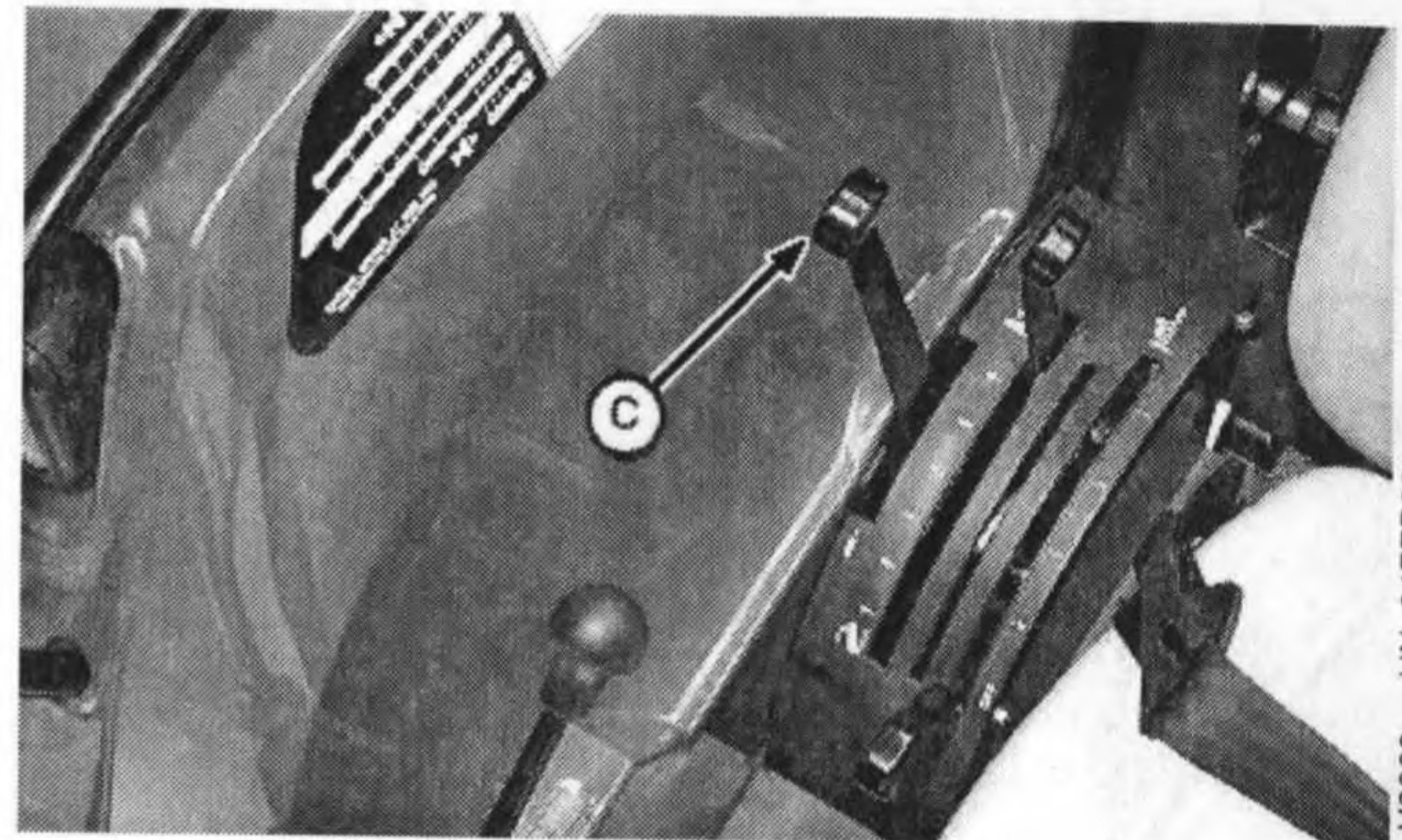
- A—SCV No. 1 Control Lever
- B—Extend Cylinder
- C—SCV No. 3 Control Lever—If Equipped



M46412 -UN-31JAN92



M47174 -UN-31JAN92



LV2008 -UN-24FEB99

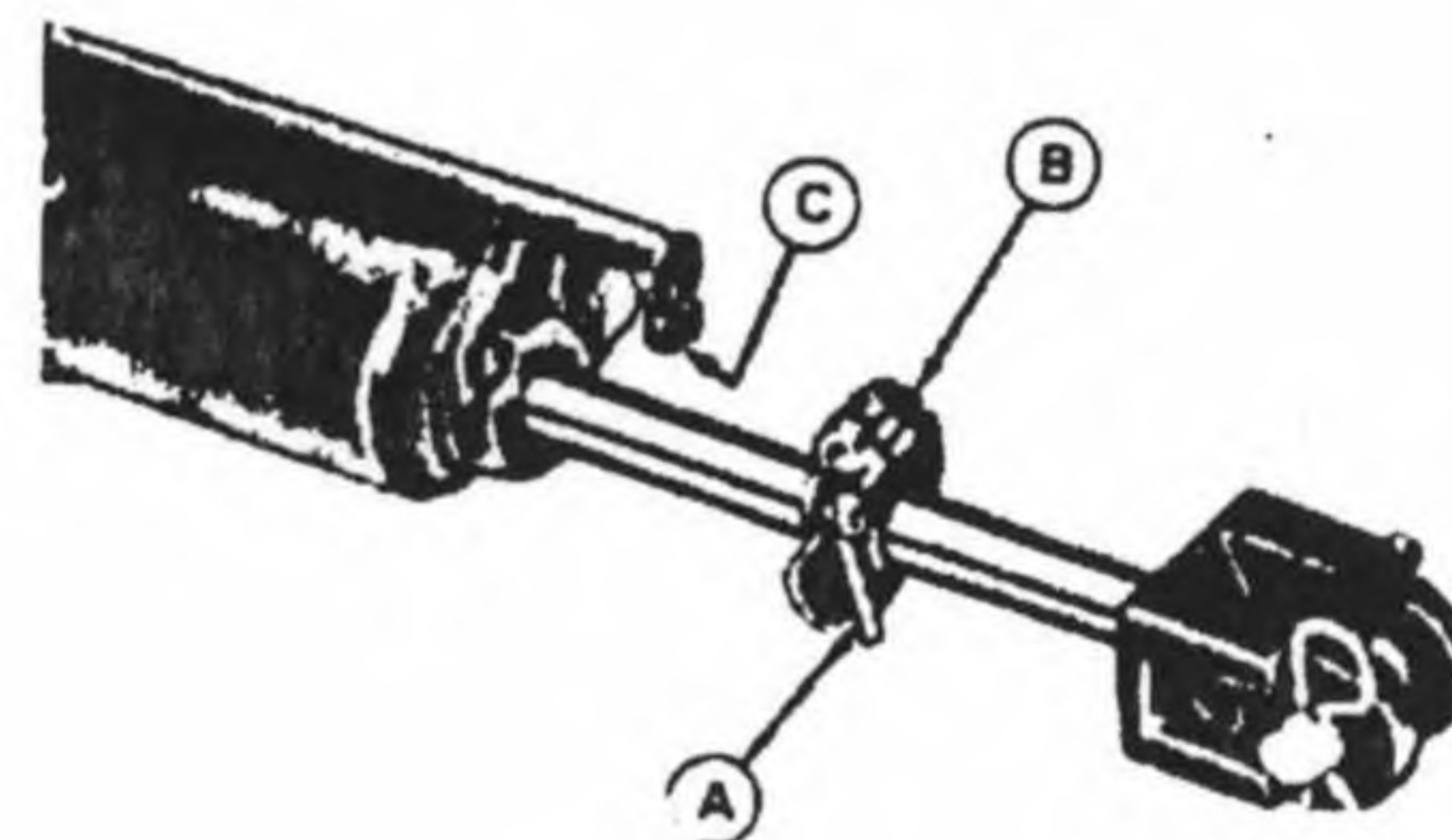
LV,5010RC,I1 -19-25FEB99-1/1

Adjusting Cylinder Stop

Working stroke of remote cylinder is adjustable. Cylinder retracts only until it contacts movable stop, then stops automatically.

1. Lift lever (A).
2. Slide adjustable stop (B) to desired position.
3. Push lever down firmly. Be sure lever will not contact stop rod arm (C).

IMPORTANT: Be sure stop clamps securely on rod. If it does not, lift lever and rotate it clockwise, then push it down firmly.



- A—Lever
- B—Adjustable Stop
- C—Stop Rod Arm

M47175 -UN-31JAN92

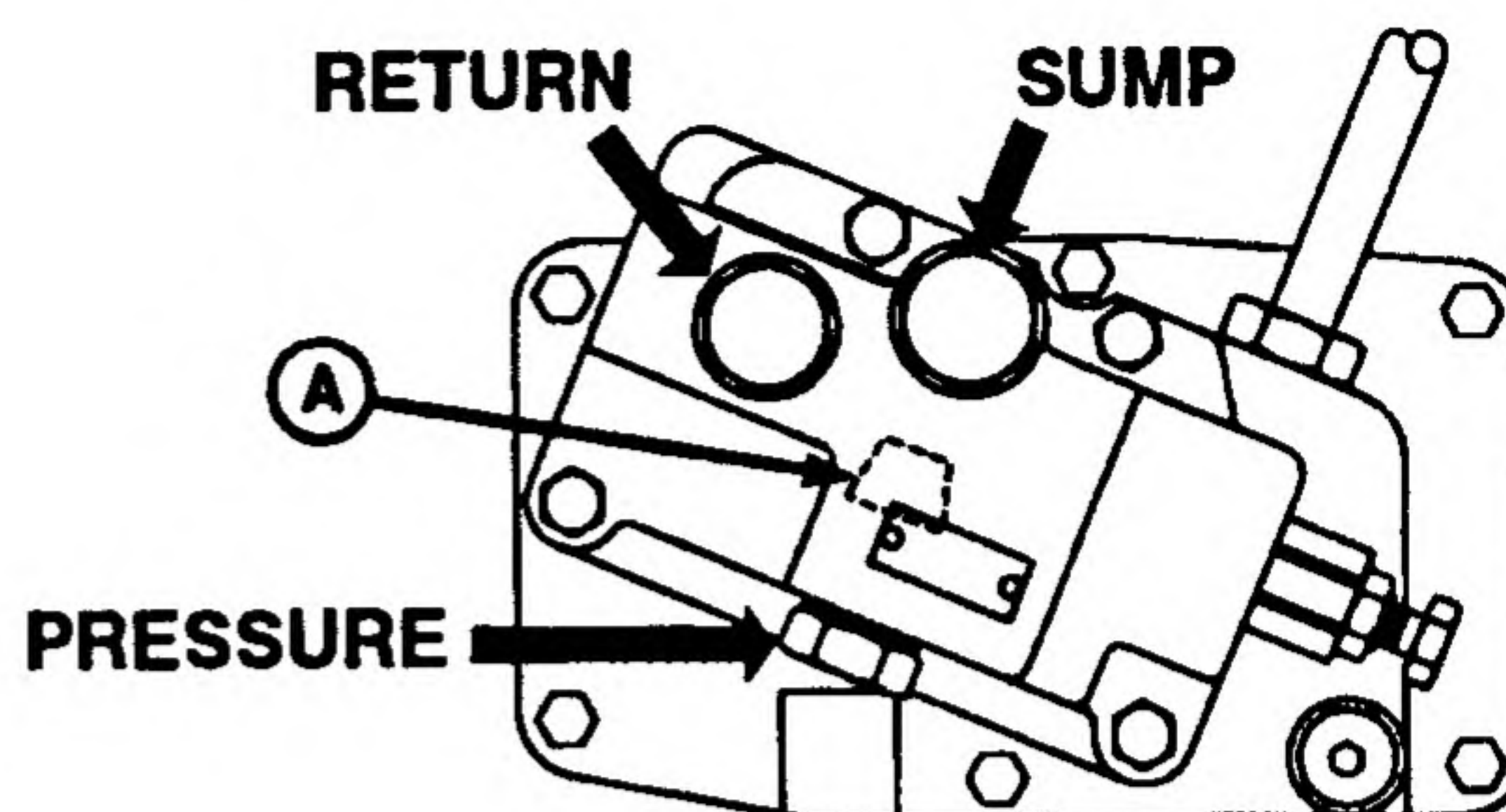
MX,RHIP,OA1 -19-24JUL95-1/1

Power Beyond Connections

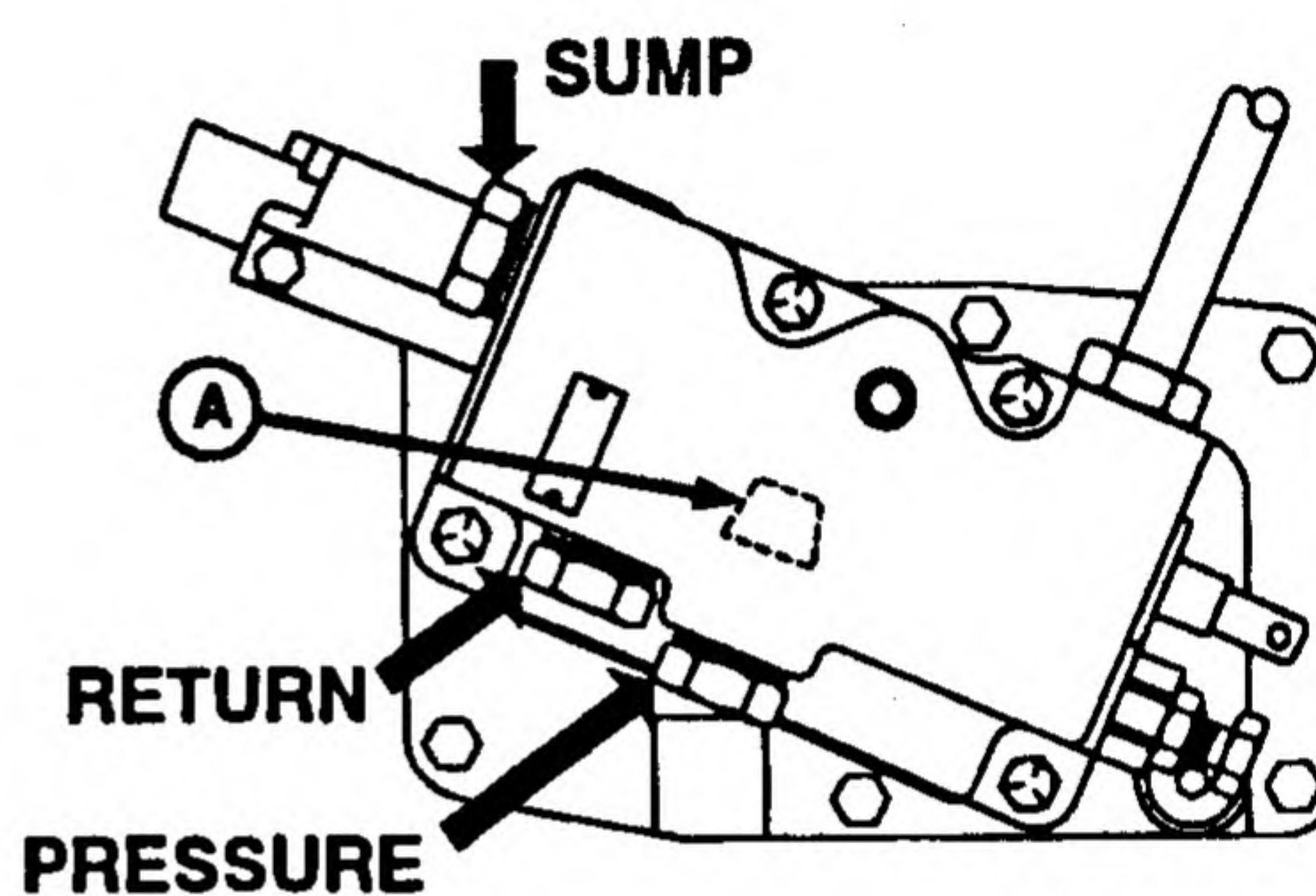
The SCV and rockshaft valve stack can be adapted to provide for remotely connecting hydraulic functions to the tractor hydraulic system. Your John Deere dealer can supply parts to provide port connections and divert the neutral flow using plug (A).

Power beyond connections must be used when operating a hydraulic orbital motor with the tractor hydraulic system.

A—Plug



One SCV or No SCV



Two or Three SCV

Continued on next page

LV.5010RC,H -19-12NOV99-1/2

LV605 -19-22APR94

LV606 -19-22APR94

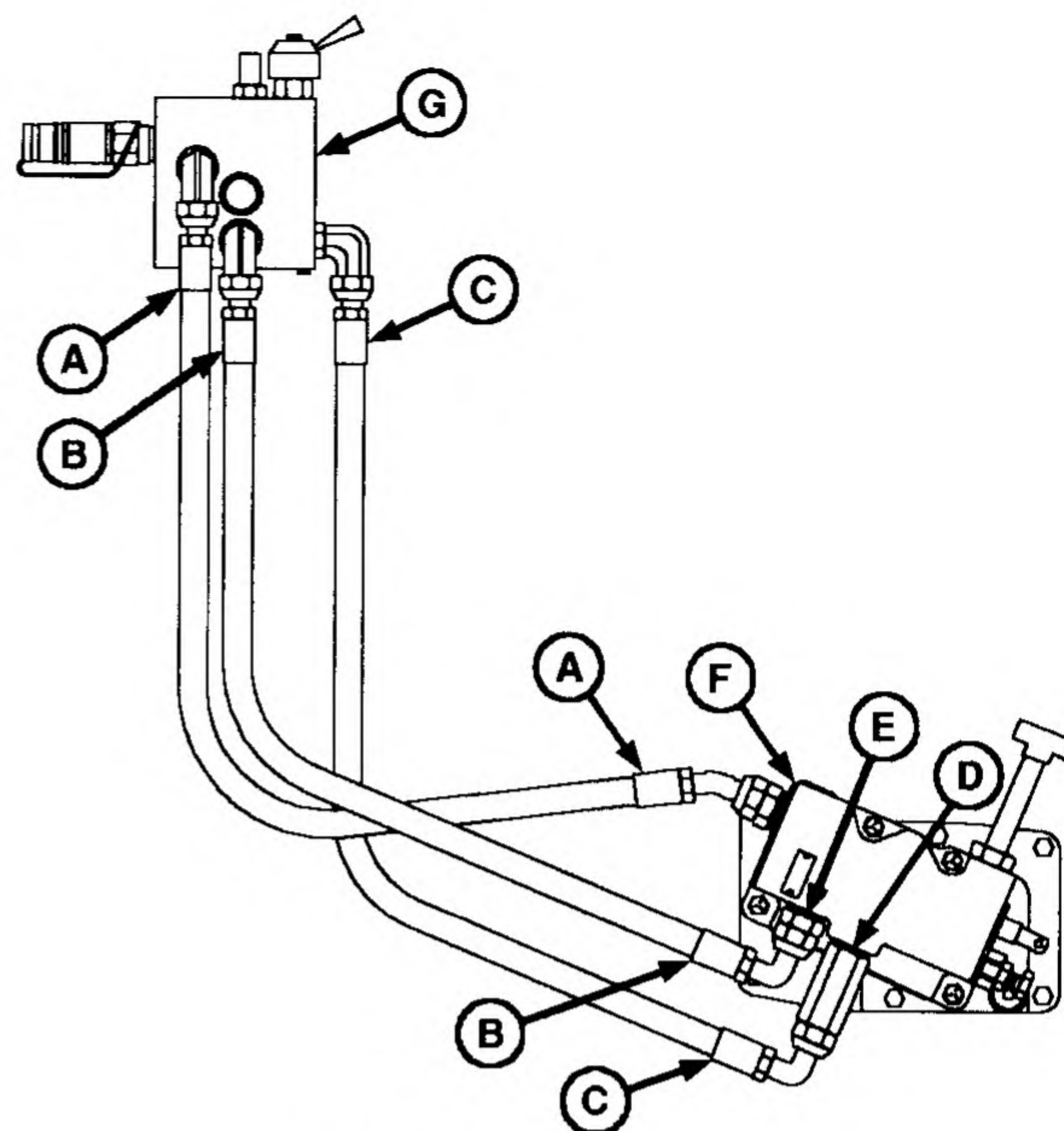
IMPORTANT: If hydraulic orbital motors are used without power beyond connections, the hydraulic oil will overheat.

Be sure hydraulic functions to be connected are compatible with open center hydraulic systems of:

- 5210 and 5310 3-cylinder: 43.2 L/m (11.4 gpm) and 19 685 kPa (197 bar) (2855 psi) capacity
- 5410 and 5510 4-cylinder: 60.2 L/m (15.9 gpm) and 19 685 kPa (197 bar) (2855 psi) capacity

The maximum hydraulic system pressure will be limited by the tractor main relief valves and cannot be increased by remotely connected valves (external relief valve). External relief valve is not required unless a lower relief pressure is required.

- A—Sump Return Hose
- B—Excess Flow Return Hose
- C—Pressure Port Hose
- D—Pressure Port Fitting
- E—Excess Flow Return Port Fitting
- F—Sump Return Port
- G—Power Beyond Valve

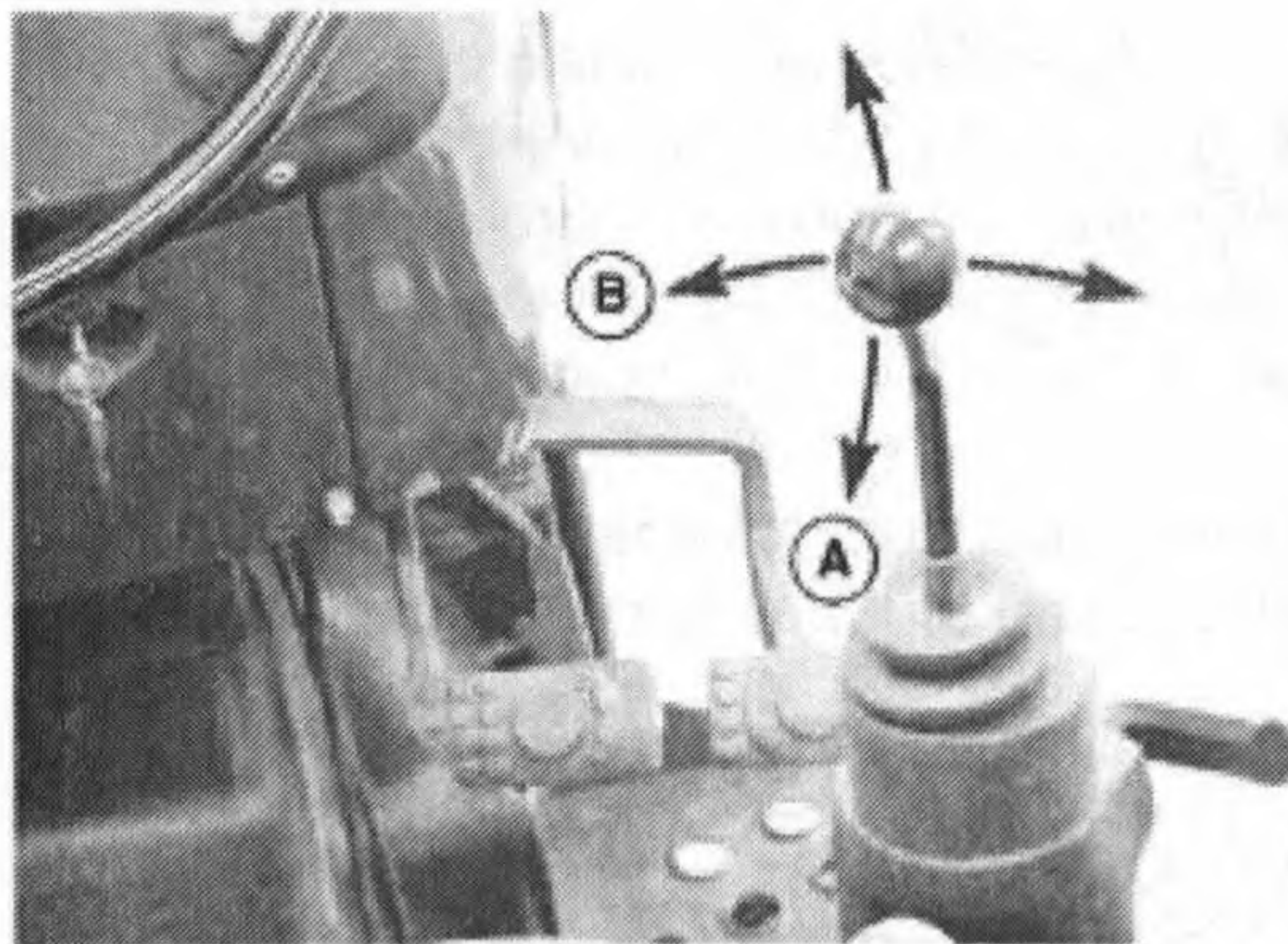


Two or Three SCV Option Shown

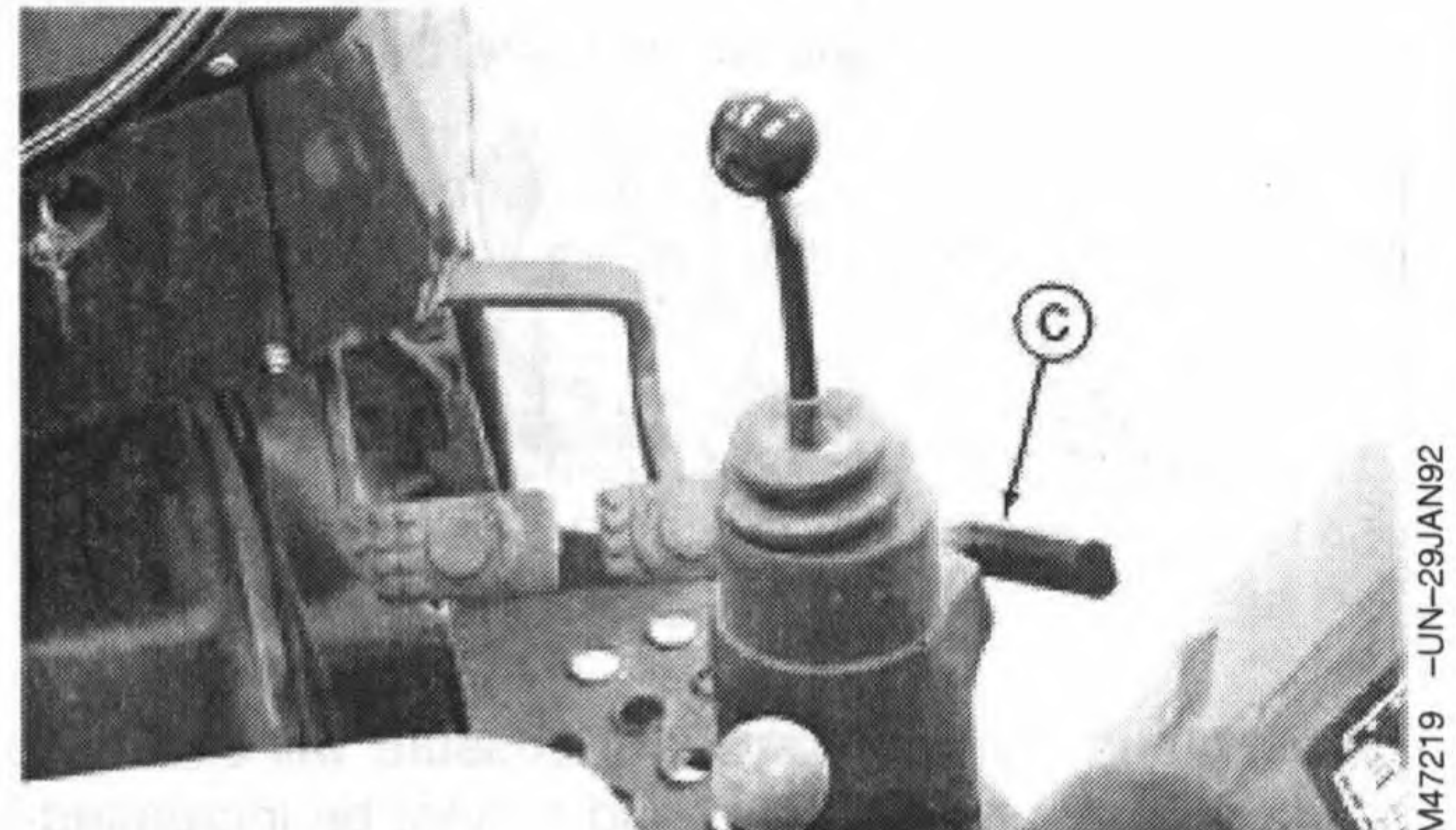
LV2465 -UN-02SEP99

LV,5010RC,H -19-12NOV99-2/2

Loader Joystick Functions



LV1508 -UN-19JAN96



M47219 -UN-29JAN92

A—Forward and Back Positions (No. 1 SCV)

B—Inward and Outward Positions (No. 2 SCV)

C—Transport Lock

The control lever for the No. 1 and No. 2 SCVs has four directions of movement to enable simultaneous control of two functions.

Forward and back direction (A) has the following positions:

- Pulled fully rearward—Extend position
No. 1 SCV is normally connected to the loader boom cylinder and raises when the lever is pulled rearward.
- Spring centered—Off and locked position
SCVs are locked to hold the boom and bucket in position.
- Pushed slightly forward—Retract position
Boom cylinder is lowered, valve can be metered to control rate of lowering.
- Pushed fully forward—Float position
SCV connects both cylinder ports to the return circuit. Loader boom can move freely to follow ground contour. Lever must be manually returned to neutral.

Inward and outward direction (B) has the following position:

- Pushed outward—Extend position
No. 2 SCV is normally connected to the bucket cylinder and dumps when the lever is moved to the right.
- Pushed fully outward—Regenerative position
Provides faster loader bucket dump. Reduces cavitation. Lever returned to neutral by valve spring.
- Spring centered—OFF position
Bucket is locked in position.
- Pulled inward—Retract position
Flow to the bucket cylinder can be metered to slowly roll the bucket upward.

TRANSPORT LOCK

Loader control lever has a transport lock (C). Turn counterclockwise to lock the lever, clockwise to unlock.

LV,5010RC,E -19-27MAY99-1/1

Disconnecting Cylinder Hoses

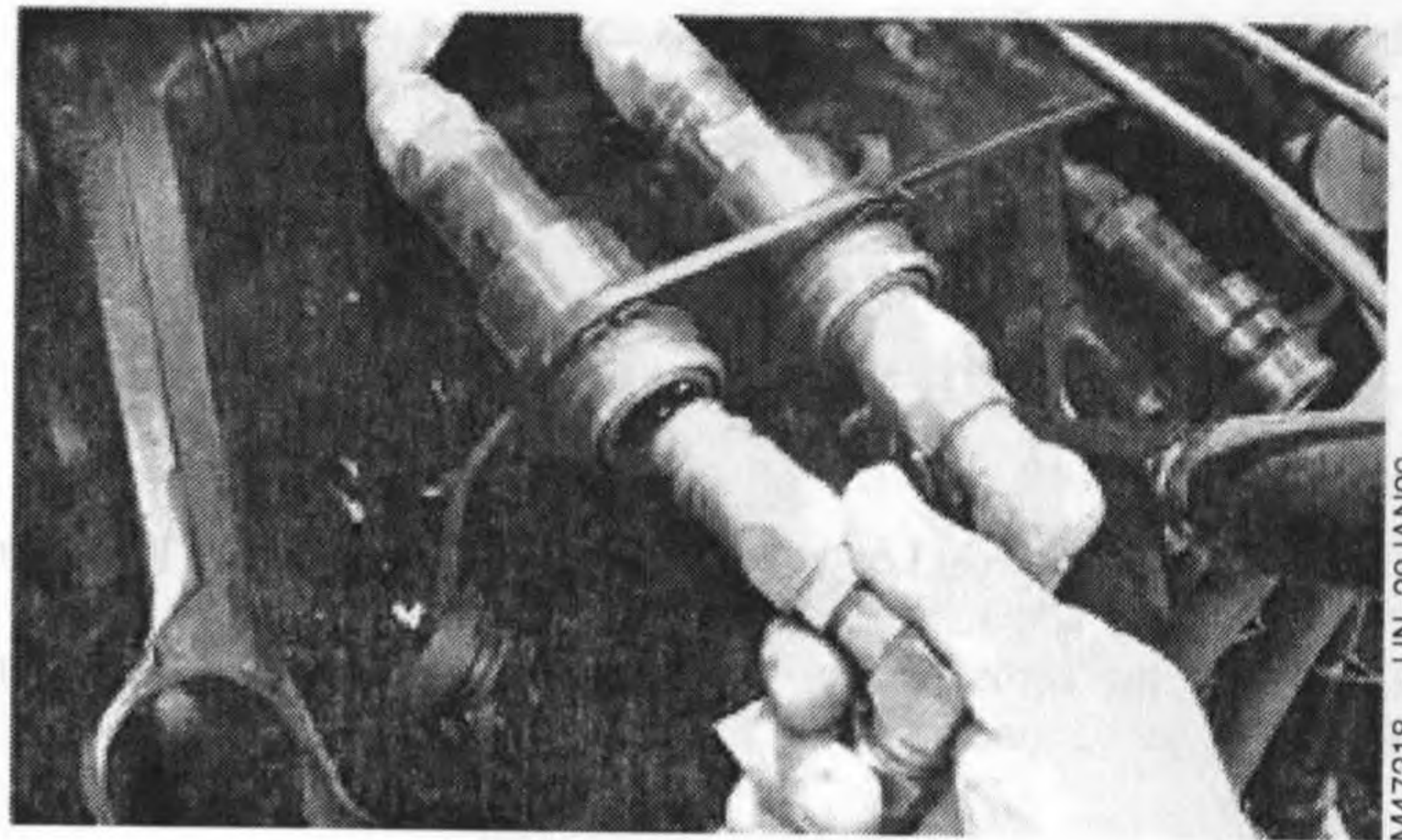
1. If possible, retract remote cylinder as much as possible to protect cylinder rod from damage.



CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

2. With as much hydraulic pressure relieved as possible from hoses, pull hoses from couplers.
3. Make sure dust plugs for receptacles and dust caps for hoses are clean, then install hoses.



X9811 -UN-23AUG88

M47218 -UN-29JAN92

LV,5010RC,F -19-03JUN97-1/1

Drawbar and PTO

Observe Drawbar Load Limitations

IMPORTANT: Certain heavy equipment, such as a loaded single-axle trailer, can place excessive strain on drawbar. Strain is greatly increased by speed and rough ground.

Static vertical load on drawbar should not exceed:

Fully Extended—760 kg (1675 lb) maximum.

Short Position—1120 kg (2470 lb) maximum.

Drive slowly with heavy loads.

Specification

Drawbar Static Vertical Load—..... 760 kg (1675 lb) Maximum
Fully Extended Capacity
Drawbar Static Vertical Load—..... 1120 kg (2470 lb) Maximum
Short Position Capacity

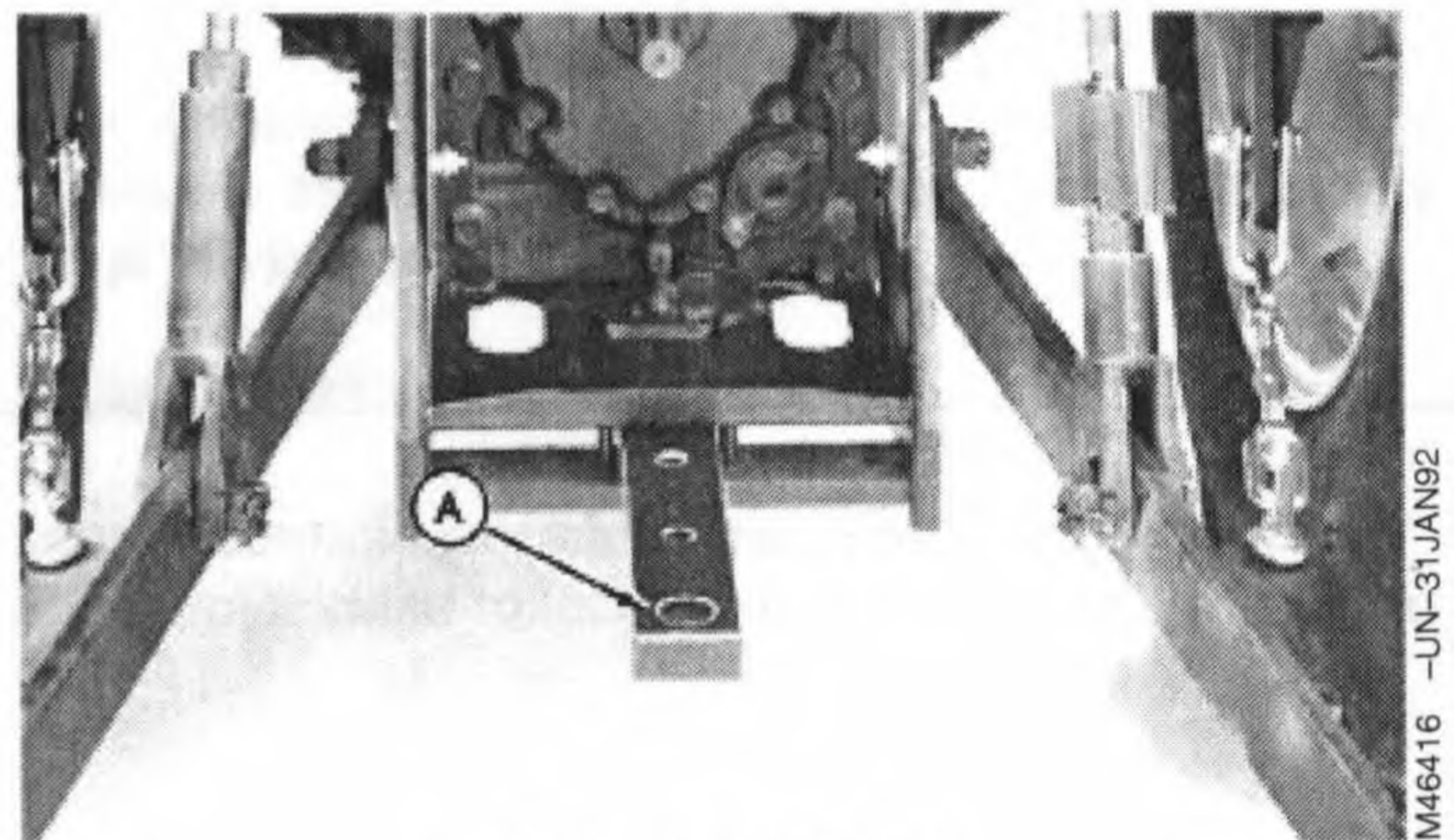
MX,DRIP,JJA1 -19-21APR94-1/1

Selecting Drawbar Position

IMPORTANT: For drawn PTO-driven implements, drawbar must be in the long position (as shown) to provide 355 mm (14 in.) between drawbar hitch hole (A) and end of PTO shaft.

For maximum traction and efficiency, drawbar should be positioned in the center, short position. (See implement operator's manual for more information.)

A—Drawbar Hitch Hole



Drawbar Long Position

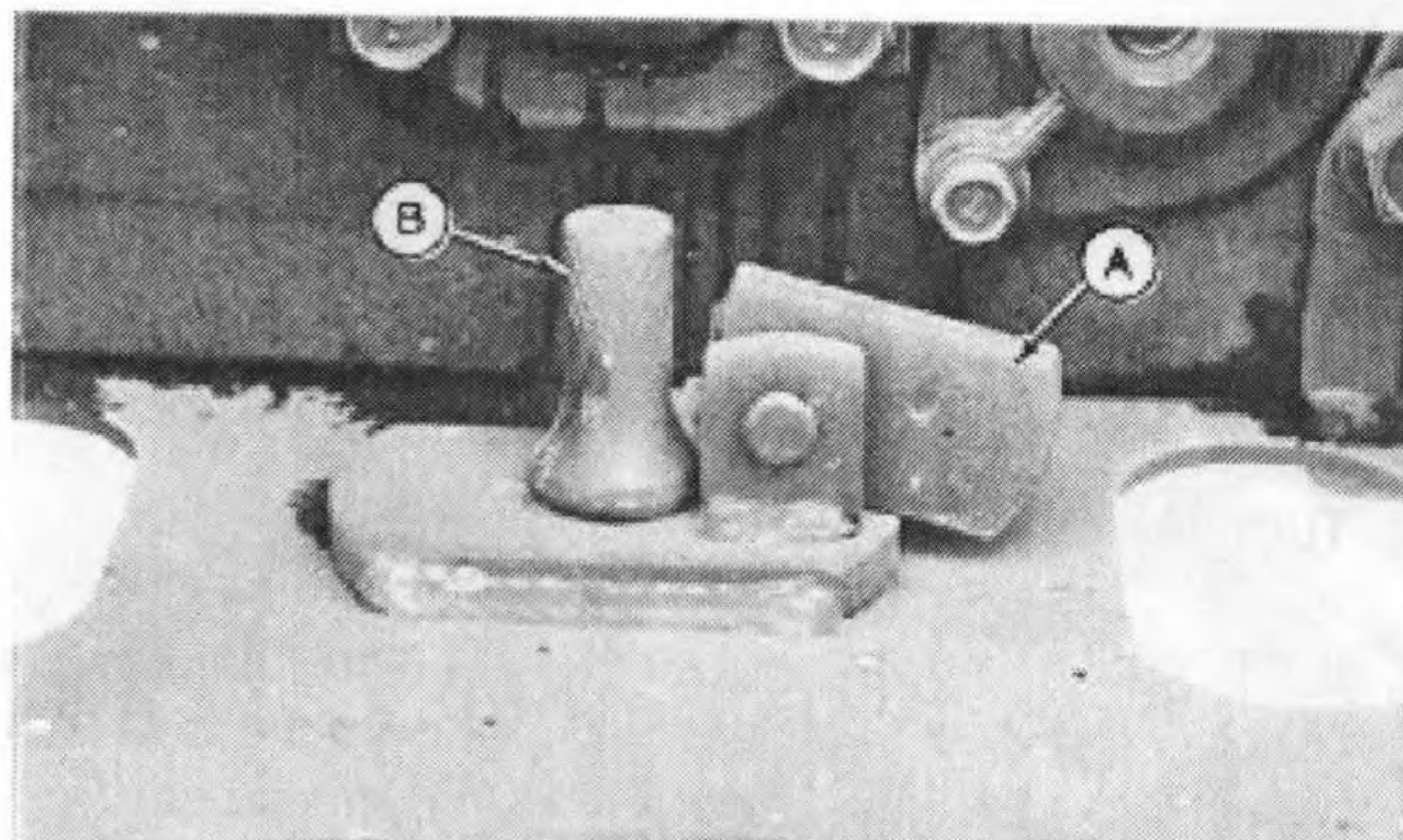
M46416 -UN-31JAN92

MX,DRIP,KKA2 -19-24JUL95-1/1

Adjusting Drawbar Length

Lift drawbar pin retaining latch (A). Remove drawbar pin (B). Slide drawbar to desired position. Install drawbar pin and rotate latch to secure drawbar pin.

A—Drawbar Pin Retaining Latch
B—Drawbar Pin



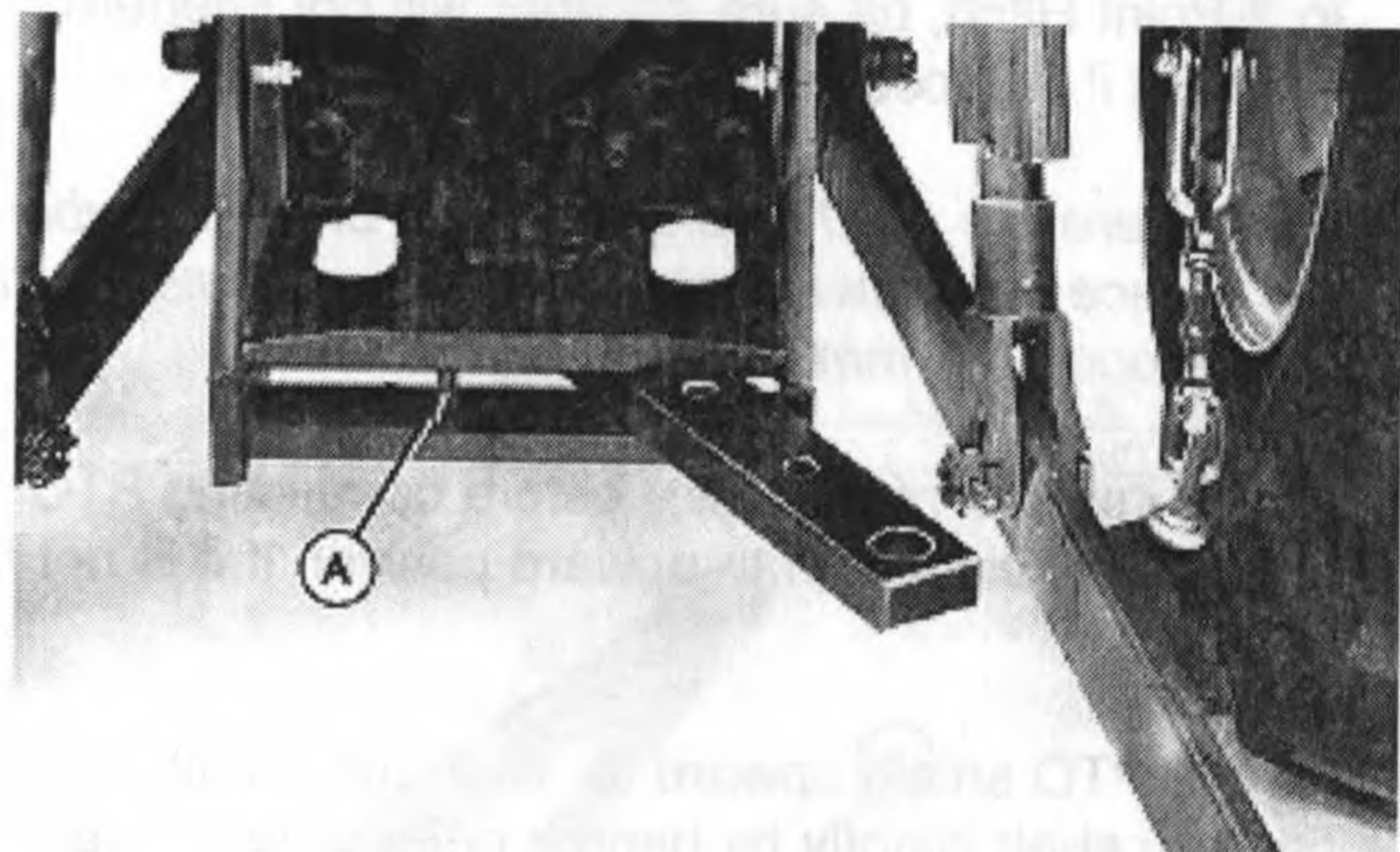
M46414 -UN-31JAN92

MX,DRIP,LLA1 -19-24JUL95-1/1

Using Swinging Drawbar

Drawbar cap screws (A) can be removed to let drawbar swing free. This is helpful when turning under load.

A—Drawbar Cap Screws



M46415A -UN-22APR94

MX,DRIP,MMA2 -19-24JUL95-1/1

Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



TS1644 -UN-22AUG95

DX,PTO -19-12SEP95-1/1

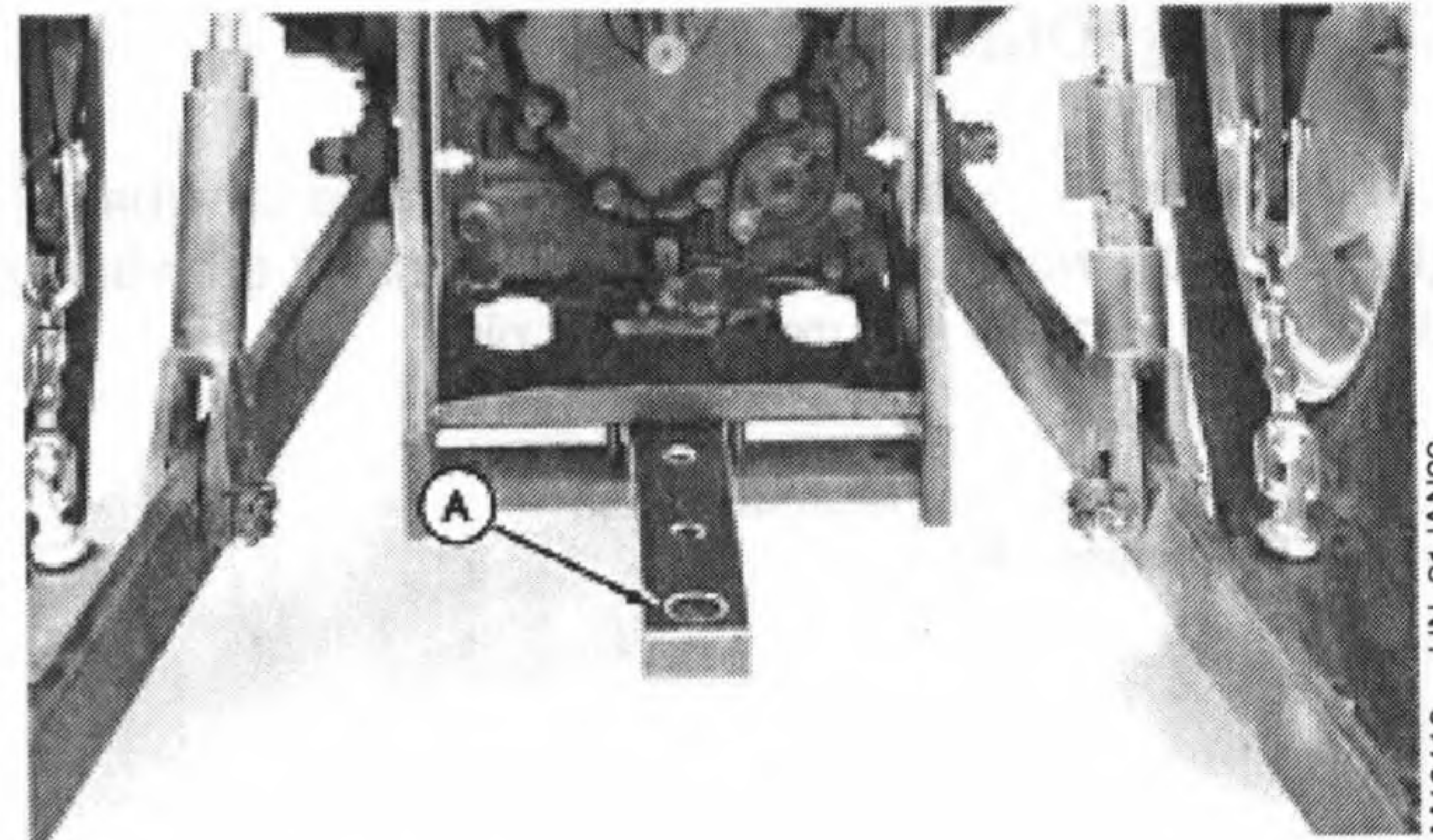
Attaching PTO-Driven Implement



CAUTION: Stop engine before attaching implement or working in area of implement hitch.

1. Turn key to OFF position to stop engine.
2. If PTO driven implement will be attached to drawbar (A), the drawbar must be positioned so there is 355 mm (14 in.) between end of PTO shaft and center of drawbar pin hole. Make sure drawbar locking pins and spring pins are in place. If implement will be connected to 3-Point Hitch, be sure drawbar will not interfere. Remove it if necessary.

NOTE: There are two holes at the front of the drawbar. Place the drawbar pin in the second hole for the proper 355 mm (14 in.) length.



A—Drawbar

3. Attach implement to tractor before connecting PTO drive line. Raise hitch to upward position if it is not to be used.
4. Rotate PTO shield upward for clearance. With engine off, turn shaft slightly by hand if necessary to line up splines. Connect drive line to PTO shaft. Pull out on shaft to be sure drive line is locked to PTO shaft. Place PTO shield in downward position.
5. Be sure all shields are in place and in good condition. Never operate PTO unless master shield is properly installed. WITH ENGINE STOPPED, check integral shields on drive line by making sure they rotate freely on shaft. Lubricate or repair as necessary.
6. Check carefully for any interference, make sure hitch is raised to the upper position if it is not used.

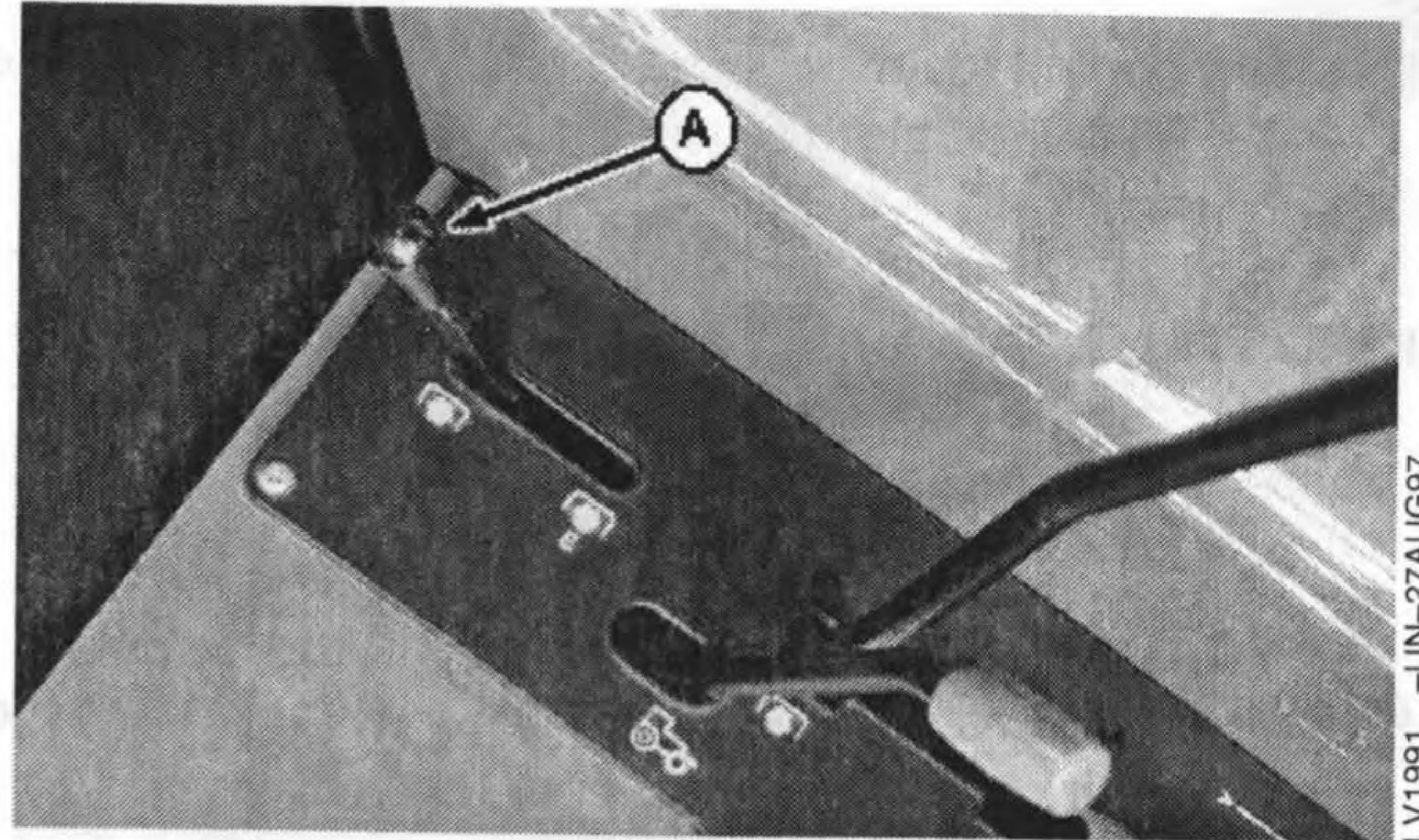
MX,DRIP,PPA3 -19-21MAY99-1/1

Selecting Correct PTO Speeds (SyncShuttle™ Transmission)

For standard PTO operation (load requiring full engine power), pull lever (A) back to 540 position.

For economical PTO operation (lighter load), push lever forward to 540E position. In economical mode, engine is run at lower rpm to conserve fuel while still turning PTO shaft at 540 rpm.

NOTE: With the PTO shift lever in 540E position, engine fast idle speed above 1900 rpm (no load) or 1700 rpm (loaded) cannot be obtained with either the hand or foot throttle.



A—PTO Shift Lever

SyncShuttle is a trademark of Deere & Company.

LV,5010DP,A -19-29AUG97-1/1

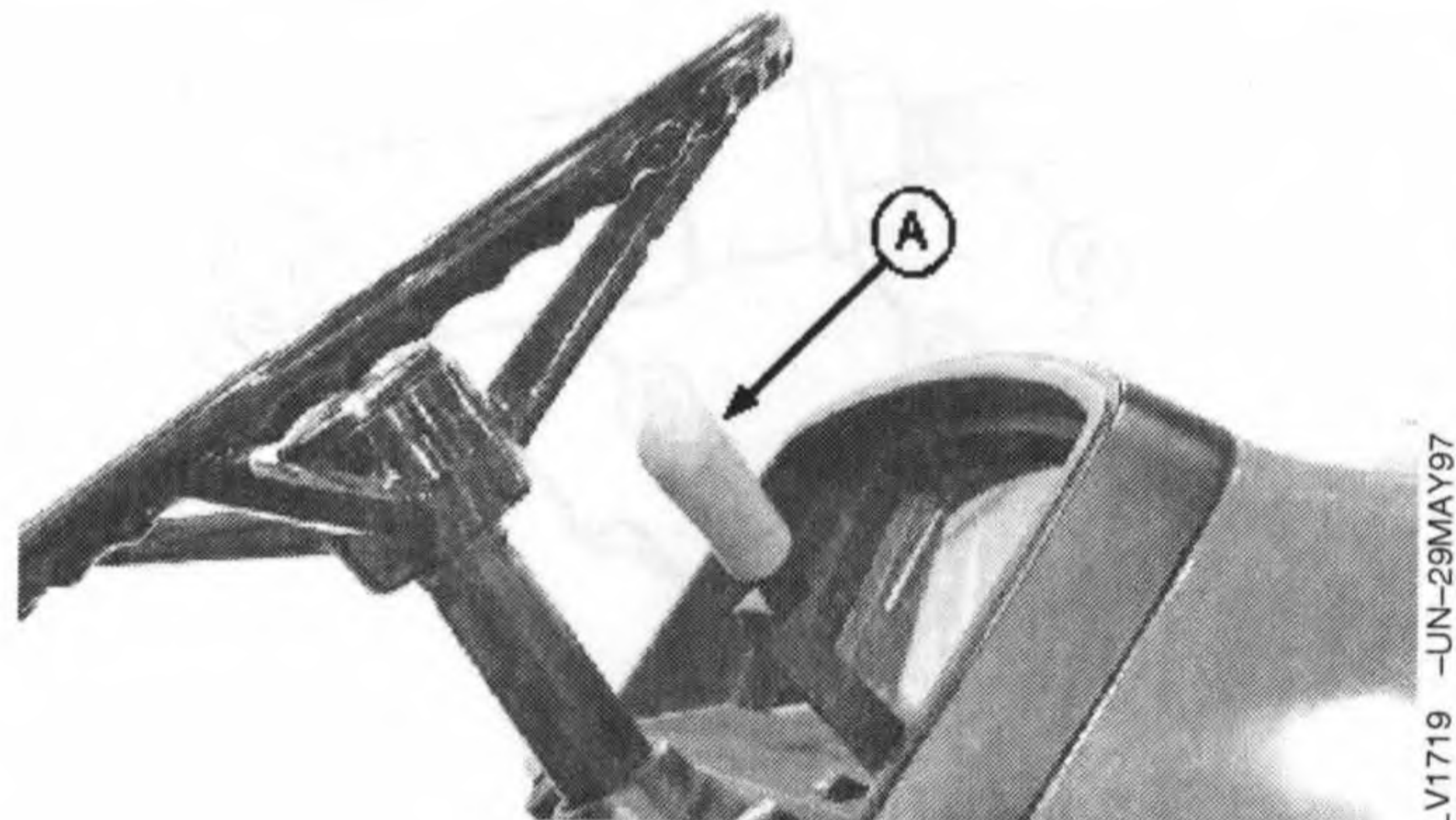
Operating Tractor PTO

NOTE: Engine will not start if PTO clutch lever is engaged.

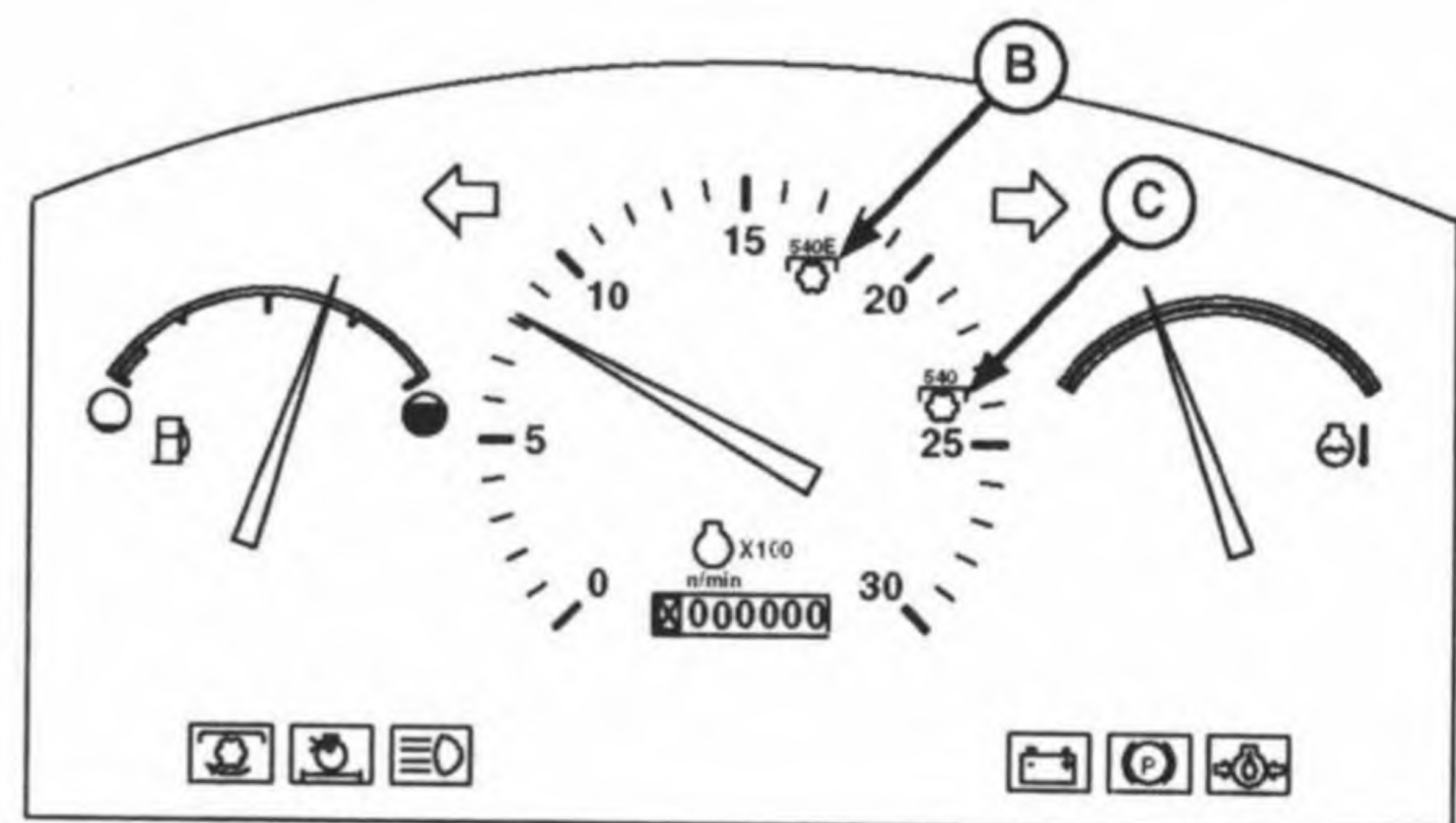
540E PTO (B) is a factory installed option on SyncShuttle™ transmissions only.

1. Depress clutch pedal, start engine and push hand throttle lever (A) forward until tachometer indicates PTO rated speed of 1700 rpm (B) for 540E operation or 2400 rpm (C) for standard 540 operation.

NOTE: Engine speed is mechanically limited to a maximum of 1700 rpm when in 540E position. 540E operation will not engage if engine speed is above 1700 rpm.



- A—Hand Throttle Lever
- B—540E Operation Speed
- C—540 Operation Speed



SyncShuttle is a trademark of Deere & Company.

Continued on next page

LV,5010DP,C -19-03JUN97-1/2

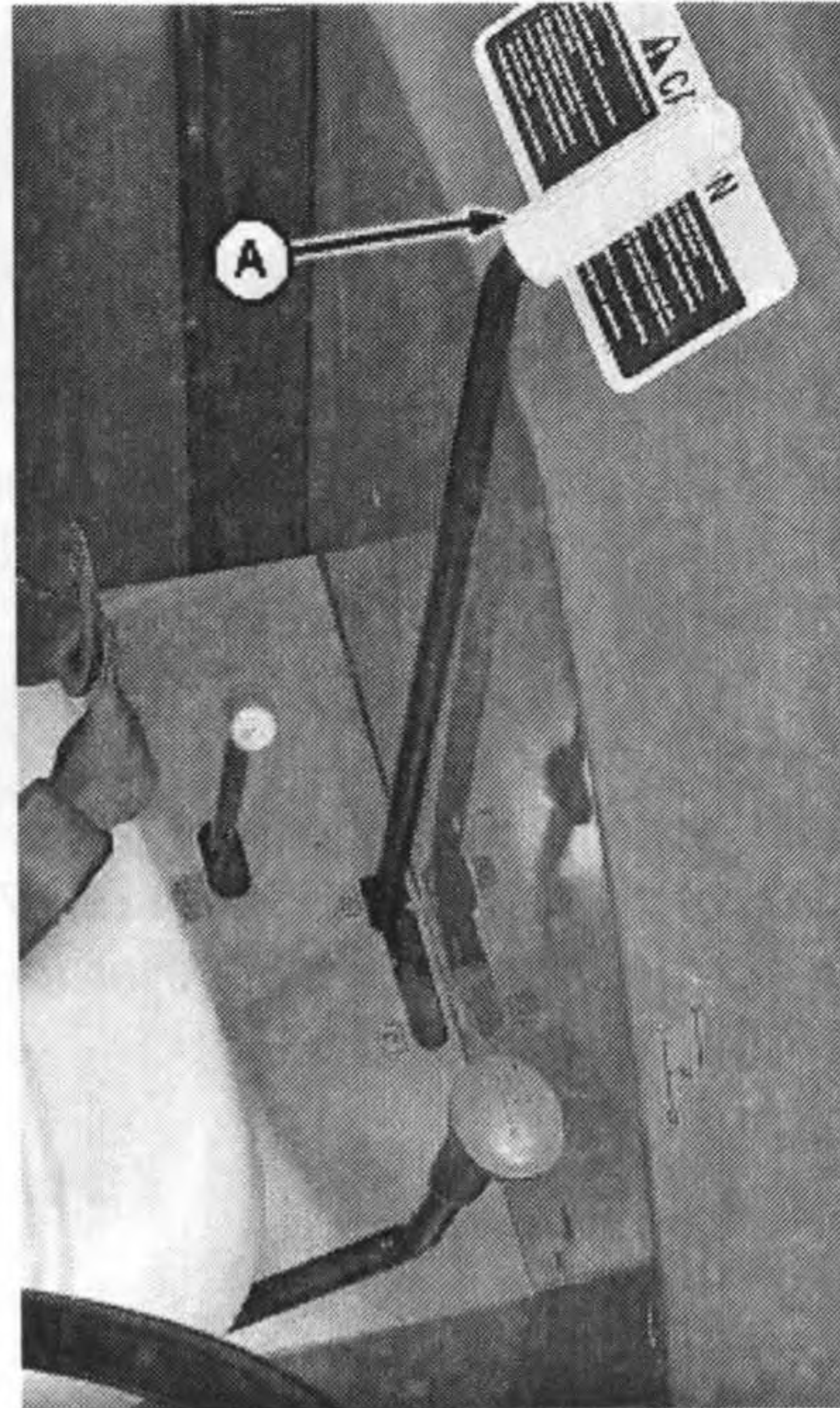
2. Move control lever (A) inward and forward to engage PTO. PTO indicator (B) will light when PTO is engaged.

IMPORTANT: A warning alarm will sound for a few seconds if you leave seat with PTO engaged.

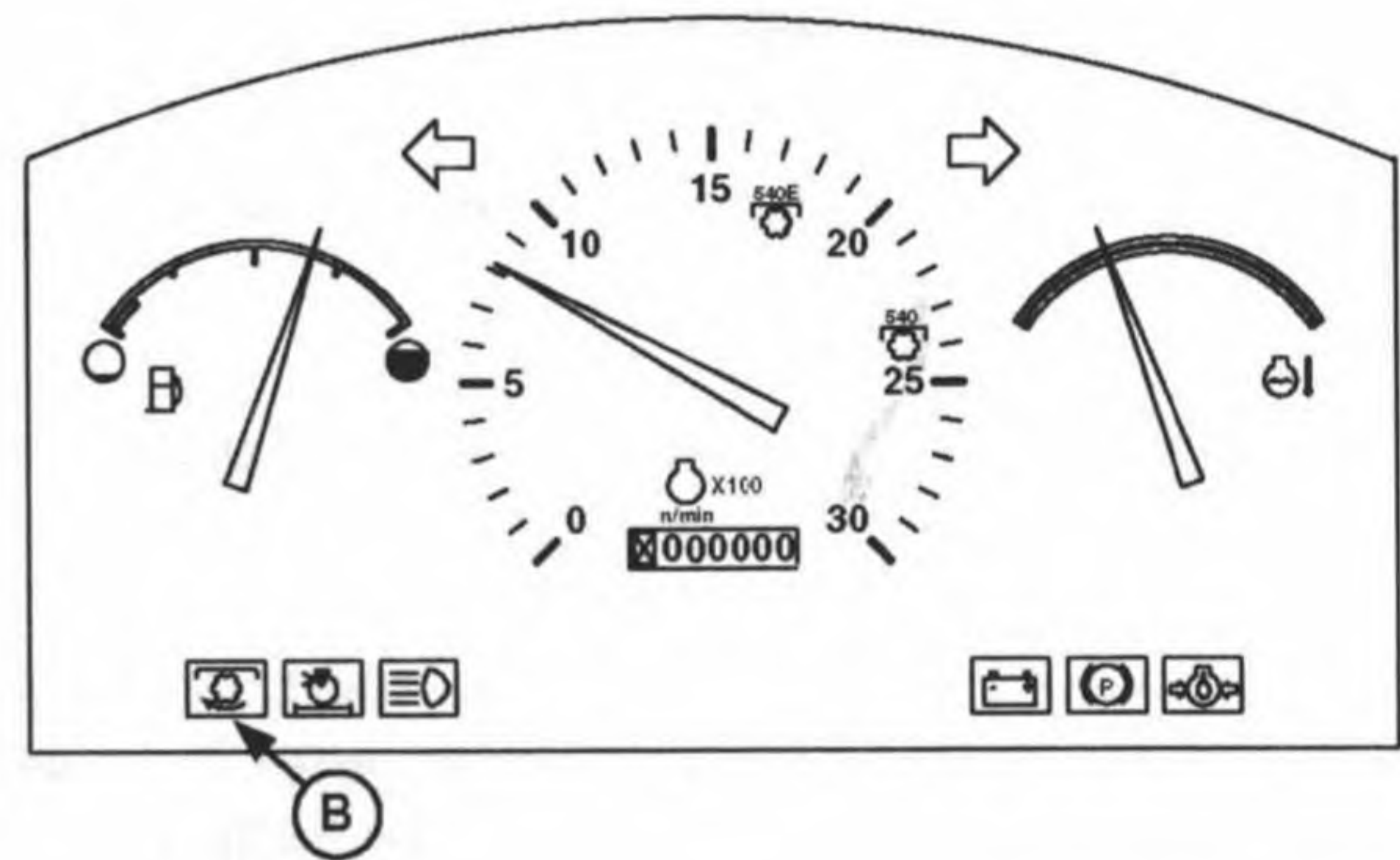
CAUTION: Turn key off to stop engine and make sure all mechanisms have stopped before cleaning out machine or making any adjustments to PTO driven implement.

3. Pull control lever back to disengage PTO.

A—PTO Control Lever
B—PTO Indicator



LV1745 -UN-02JUN97



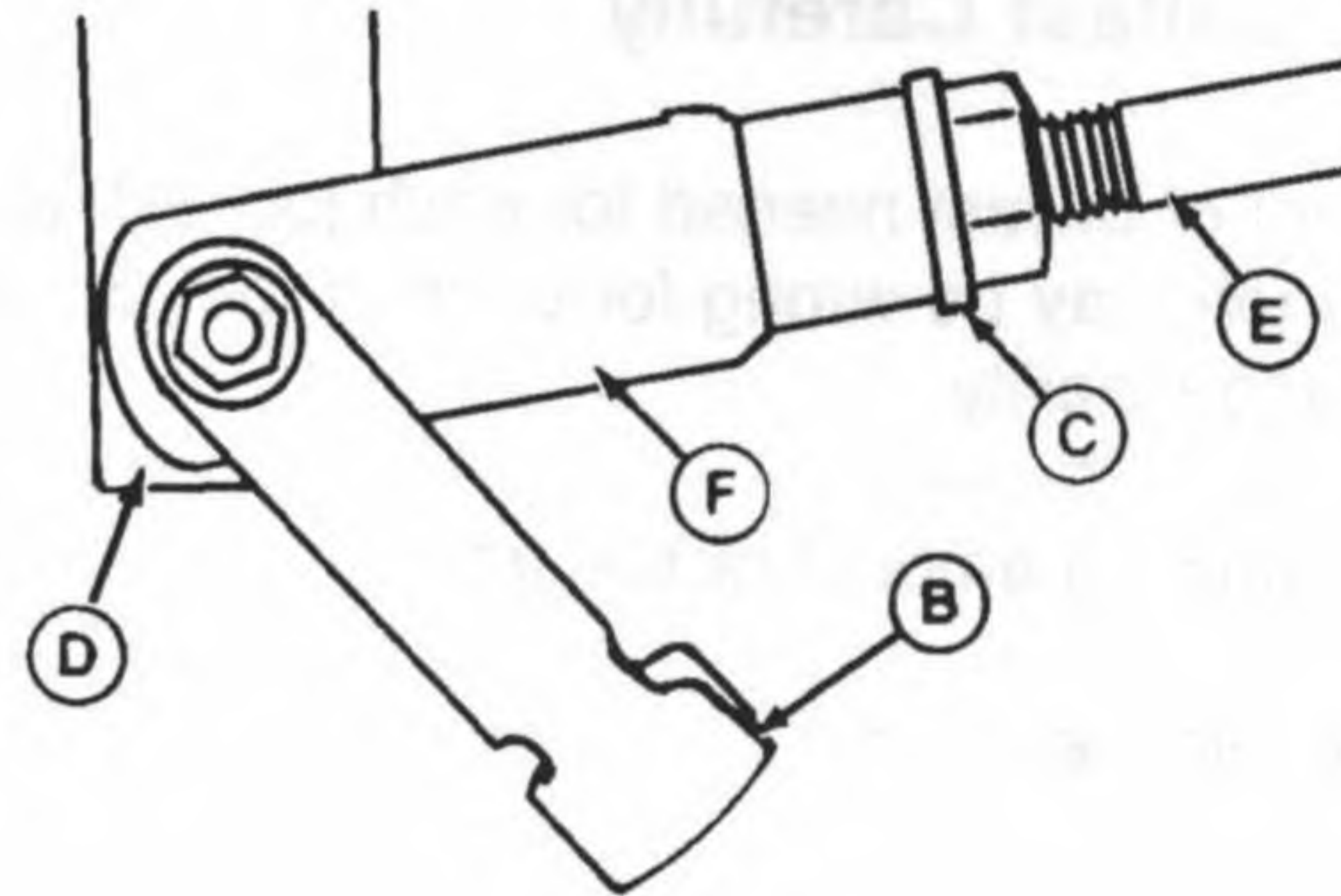
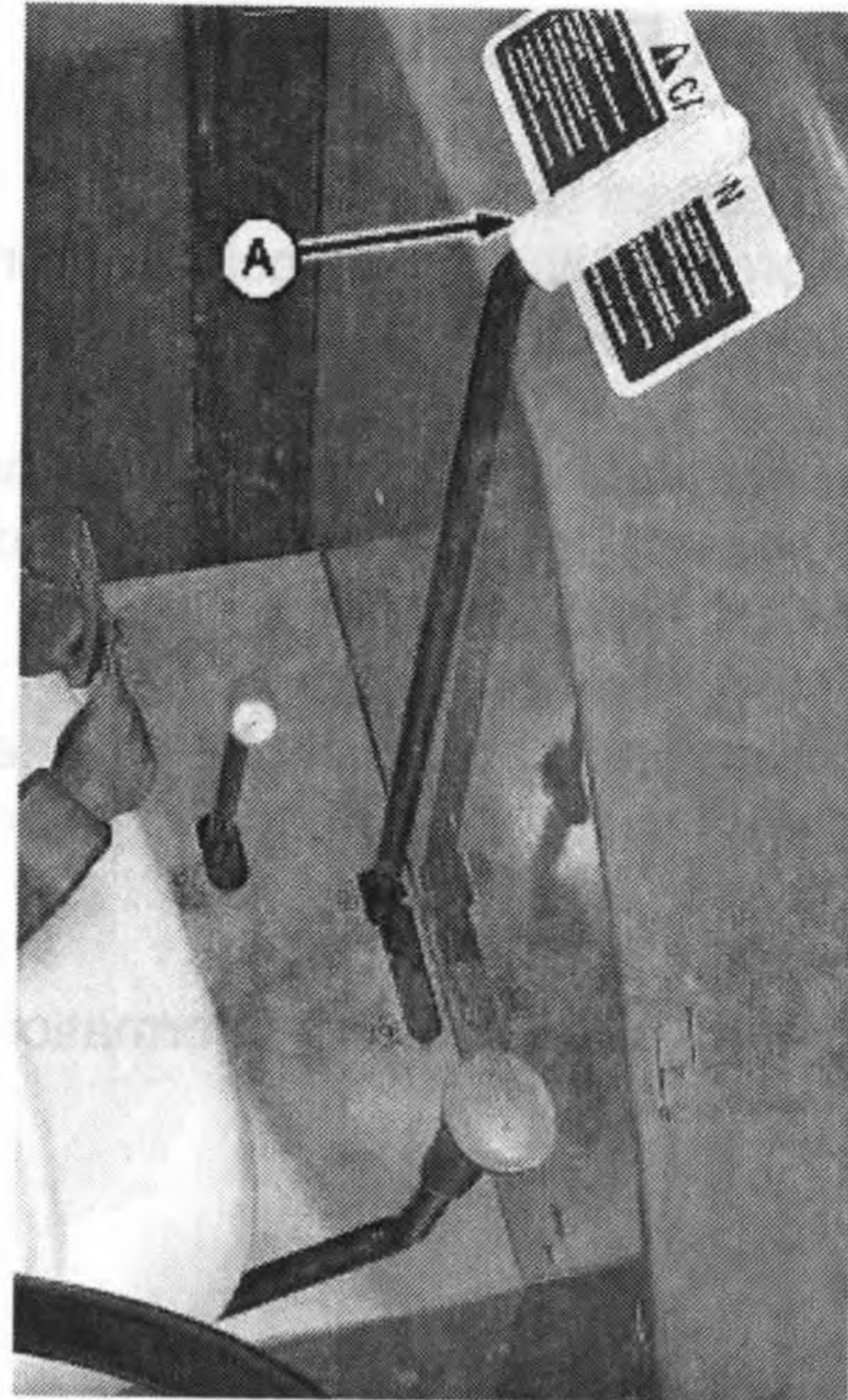
LV1746 -UN-29MAY97

LV,5010DP,C -19-03JUN97-2/2

Adjusting PTO Clutch Operating Rod— CollarShift or SyncShuttle™ Transmissions

1. Move PTO lever (A) to rearward (disengaged) position.
2. Remove clip pin (B) from forward end of PTO clutch rod.
3. Loosen jam nut (C) from rear of front clevis (F).
4. Adjust length of rod (E) so the clip pin (B) can be inserted with the rod pulled forward and the arm pulled rearward to eliminate freeplay. Lengthen rod (E) by 1/2 turn of the clevis (F) to provide a slight amount of lever freeplay.
5. Reinstall clip pin (B) in clevis (F) and arm (D).
6. Check for equal thread engagement at each end of the PTO clutch rod. Jam nut at the rear (not shown) can be loosened and the rod turned to equalize thread engagement (PTO adjustment is not affected).
7. Tighten jam nuts (C) at each end of rod.

A—PTO Clutch Lever
B—Clip Pin
C—Jam Nut
D—Arm
E—Rod
F—Clevis



SyncShuttle is a trademark of Deere & Company

LV,5010DP,D -19-06JUN97-1/1

Ballast

Planning for Maximum Productivity

Proper ballasting is an important factor in tractor performance. maximum productivity can be achieved only if tractor weight is appropriate for the job.

John Deere FMO (Fundamentals of Machine Operations) Tractors, discusses methods of determining correct tractor weight and ballast selection. FMO-Machinery Management includes information on tractor and implement matching and increasing productivity. (These publications may be ordered using the form in the back of this manual.

Your John Deere dealer can assist you with information on these subjects.

MX,BAIP,L -19-18MAR92-1/1

Selecting Ballast Carefully

Match amount of ballast needed for each job. What is right for one job may be wrong for another job. Ballast for traction and stability.

Factors determining amount of ballast:

- Soil surface-loose or firm.

- Type of implement-integral/semi-integral or towed.
- Travel speed-slow or fast.
- Tractor power output-partial or full load.
- Tires-single, oversize, or dual.
- Type of front axle—2-WD or MFWD.

MX,BAIP,MA2 -19-01JUN99-1/1

Matching Ballast to Load Work

Use no more ballast than necessary, and remove ballast when it is no longer needed.

Rather than weighing tractor down to pull heavy loads, try to reduce load. Pulling a lighter load at a higher speed is more economical and more efficient.

Too Little Ballast		Too Much Ballast	
1.	Excessive wheel slip	1.	Increased load
2.	Power loss due to churning soil	2.	Power loss due to carrying extra weight
3.	Tire wear	3.	Tire strain
4.	Fuel waste	4.	Soil compaction
5.	Lower productivity	5.	Fuel waste
		6.	Lower productivity

MX,BAIP,NA3 -19-10JAN96-1/1

Checking for Correct Ballast

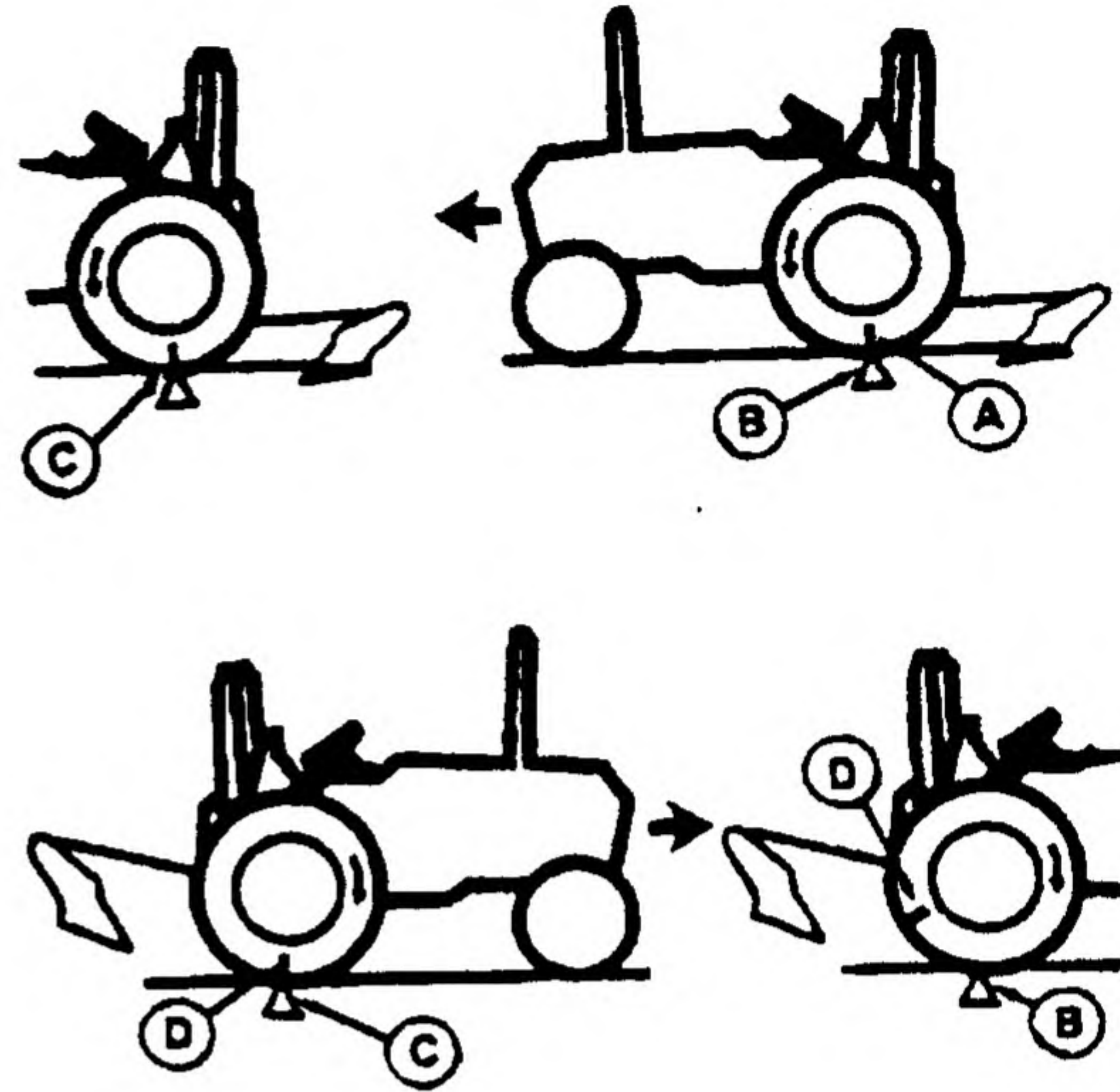
The best way to check for correct ballast is to measure amount of travel reduction (% slip) of the drive wheels. Under normal field conditions, travel reduction should be 10—15 percent.

Add more weight to drive wheels if slip is excessive. If there is less than 10 percent slip, weight should be removed.

MX,BAIP,OA3 -19-10JAN96-1/1

Measuring Wheel Slip—Manually

1. Place a mark (A) on a rear tire which is easily observed (a chalk mark is recommended).
2. With tractor working, mark a starting point (B) on the ground at the place where the tire mark (A) meets the ground.
3. Mark the ground again where the tire mark (A) completes 10 full revolutions (C).
4. With implement raised return in the opposite direction. At the second mark on the ground (C) remark the tire (D).
5. While driving the tractor along the same path (implement raised), count the tire revolutions required to reach the starting point (B).
6. Use the return tire revolutions count and "Wheel Slippage Chart" to determine slippage. 10—15 percent for two wheel drive or 8—12 percent for MFWD engaged tractors is ideal.
7. Adjust ballast or load to give correct slippage.



NOTE: Available horsepower is greatly reduced when wheel slip drops below 10 percent.

WHEEL SLIPPAGE CHART		
Non-Loaded Wheel Revolutions (Step 5)	Estimated % Slip	Recommended Action
10	0	Remove Ballast
9-1/2	5	Remove Ballast
9	10	Proper Ballast
8-1/2	15	Proper Ballast
8	20	Add Ballast
7-1/2	25	Add Ballast
7	30	Add Ballast

M47166 -UN-31JAN92

Ballast Limitations

Ballast should be limited by either tire capacity or tractor capacity. Each tire has a recommended carrying capacity which should not be exceeded (see Wheels, Tires and Treads section). If a greater amount of weight is needed for traction, a larger single tire should be considered.

Ballast can be added as either liquid or cast iron.

MX,BAIP,QA2 -19-24JUL95-1/1

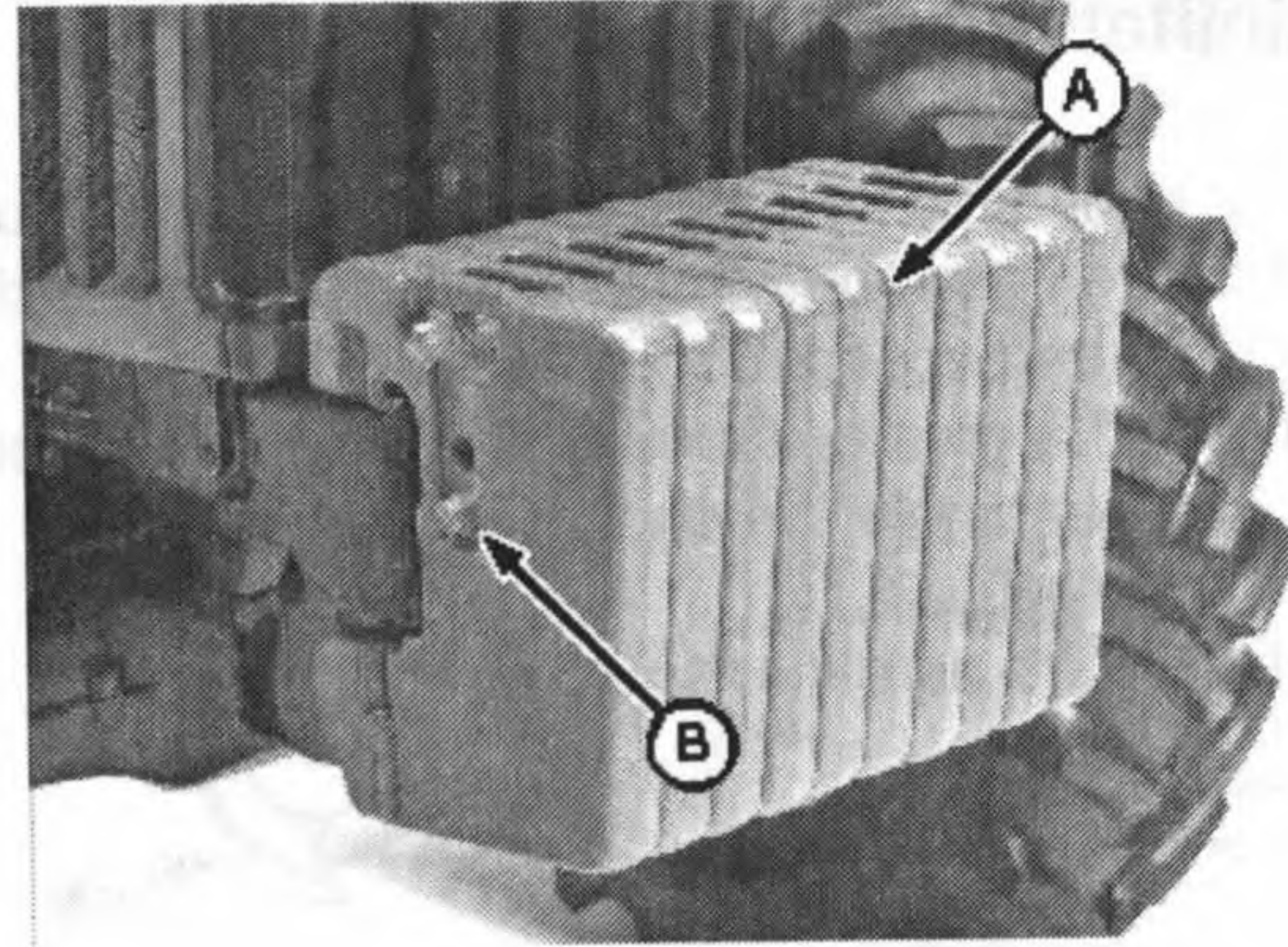
Ballasting Front End for Transport



CAUTION: Additional front ballast may be needed for transporting rear-mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.



CAUTION: Weights are heavy. Use proper lifting equipment. Approximate weight of starter weights are: 49 kg (109 lb). Approximate weight of QUIK-TATCH™ weights are 45 kg (99 lb).



LV1747 -UN-07JUN97

A—Ballast Center
B—Ballast Retaining Bolts

Specification

Starter Weight (Ballast) Weight.....	49 kg (109 lb) Each
QUIK-TATCH™ Weight (Ballast)	45 kg (99 lb) Each
Weight	

Installing QUIK-TATCH™ Weights: QUIK-TATCH™ weights can be installed on the front of the tractor.

5210 and 5310: One starter weight and up to 8 QUIK-TATCH™ weights can be installed.

5410 and 5510: One starter weight and up to 10 QUIK-TATCH™ weights can be installed.

1. Install weights in pairs, one on each side of center (A).
2. To hold weights in place, run retaining bolts (B) through holes from side-to-side. Tighten to specification.

Specification

Ballast Weights Retaining Bolts	230 N•m (170 lb-ft)
Torque	

QUIK-TATCH is a trademark of Deere & Company

LV,5010B,A -19-21MAY99-1/1

Ballasting Two-Wheel Drive Tractors

Add weight to front end if needed for stability. Heavy pulling and heavy rear-mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip-over.

Refer to the implement operator's manual, along with "Using Implement Codes" in this section, to determine the minimum number of front weights that are required for your tractor model.

MX,BAIP,SA3 -19-10JAN96-1/1

Ballasting MFWD-Equipped Tractors

Ideal tire slippage for MFWD-equipped tractors is 8—12 percent. To reduce wheel slip to this level, more weight is needed on the front than with two-wheel-drive tractors. The ideal weight split is 40 percent front, 60 percent rear, of total tractor weight. In some cases liquid ballast will be needed in front tires to obtain this weight split.

NOTE: Implement codes are used to determine proper ballast for stability and steering control. Refer to the implement code in your implement operator's manual, along with "Using Implement Codes" in this section, to determine the minimum number of front weights that are required for your tractor model. In some cases, additional front ballast is required for optimum field performance. If more assistance is needed, see your John Deere dealer.

MX,BAIP,TA3 -19-10JAN96-1/1

Determining Maximum Rear Ballast

IMPORTANT: DO NOT overload tires. If maximum weight shown in chart is not enough for safety, reduce load or install heavier ply tires.

To extend drive train life, avoid excessive soil compaction and rolling resistance, avoid adding too much ballast. Ballast should never exceed the weight required to provide traction for continuous full power loads in 3rd gear for 2-WD tractors. Remove ballast if tractor engine labors when pulling heavy loads in the first three gears. When using mechanical front wheel drive, ballasting to one gear slower is appropriate.

Chart shows carrying capacity per tire.

MAXIMUM LOAD PER WHEEL		
Tire Size Bias Ply Tires	Ply Rating	Capacity kg (lb)
13.6-28	4	1100 (2420)
14.9-28	6	1615 (3560)
16.9-24	6	1725 (3800)
16.9-28	6	1840 (4050)
16.9-30	6	1895 (4180)
21.5L-16.1	6	1438 (3170)
22.5LL-16.1	6	1692 (3730)
19.5L-24	10	2123 (4680)
19.5L-24	4	2123 (4680)
9.5-48	4 Star 10 Ply	1588 (3500)

MX,BAIP,UA3 -19-10JAN96-1/1

Determining Maximum Front Ballast

Use appropriate front ballast for a particular operating condition. Two-wheel drive tractors should only have enough ballast to maintain safe steering control.

MFWD equipped tractors should have adequate ballast to properly load front wheels. Remove ballast when it is no longer needed.

Chart shows carrying capacity per tire.

IMPORTANT: DO NOT overload tires. If maximum weight shown in chart is not enough for safety, reduce load or install tires with a higher load rating.

MAXIMUM LOAD PER WHEEL		
2-WD		
Tire Size	Ply Rating	Capacity kg (lb)
6.50-16	6	620 (1360)
7.50-16	6	750 (1650)
9.5L-15	6	771 (1700)
27/9.5L-15	6	745 (1642)
11L-15	8	1066 (2350)
MFWD		
Tire Size	Ply Rating	Capacity kg (lb)
9.5-16	6	801 (1767)
8.3-24	4	626 (1380)
9.5-24	6	935 (2070)
10.5/80-18	10	1247 (2750)
11.2-24	6	1048 (2310)
12.5-80X10	4 (I3)	2177 (4800)

Using Cast Iron Weights

Cast iron weights are available in a 48 kg (106 lb) size. Weights can be installed on the inside or outside of wheel. See your John Deere dealer for more information and recommendations on weight use and placement.

Specification

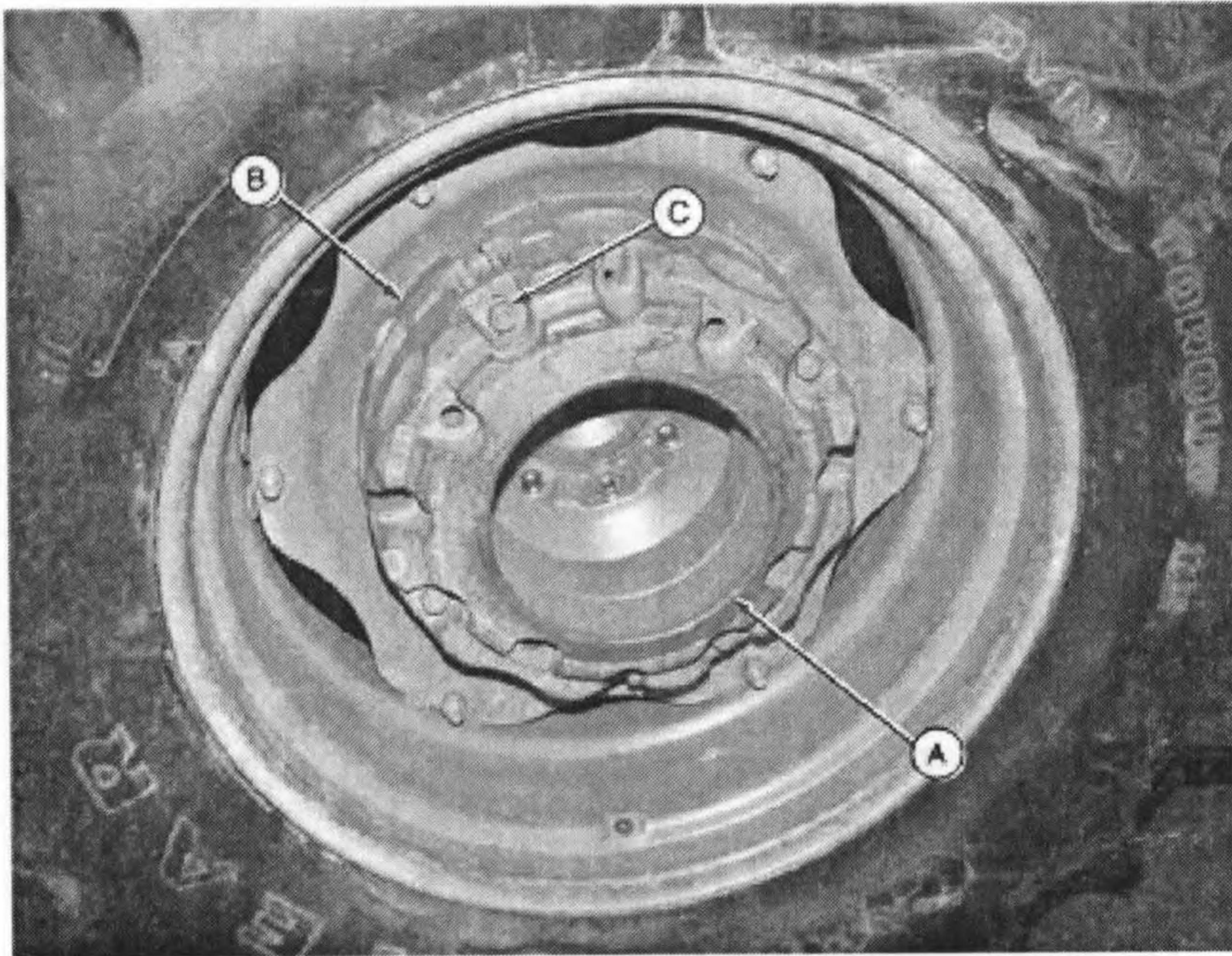
Cast Iron Weights Weight 48 kg (106 lb)



M47215 -UN-29JAN92

MX,BAIP,W -19-18MAR92-1/1

Installing Rear Cast Iron Weights



M47216 -UN-29JAN92

A—Additional Weight

B—Weight

C—Weight Holes



CAUTION: Optional cast iron weight weighs 48 kg (106 lb). Handle with care! Use appropriate equipment or have the job done by your John Deere dealer.

1. To install weights on wheel, it is necessary to remove wheel. (See "Wheels, Tires and Treads" section.)
2. Attach first weight to wheel disks.
3. To install additional weights (A), install bolts in previous weight (B). Rotate the added weight to align bolts with weight holes (C).
4. Tighten attaching bolts securely. Tighten again after a few hours service. Check tightness regularly.

LV,5010B,B -19-29AUG97-1/1

Using Liquid Weight

CAUTION: Installing liquid ballast requires special equipment and training. Have the job done by your John Deere dealer or a tire service store.

IMPORTANT: NEVER fill tire to more than 90 percent full. More solution would leave too little air space to absorb shocks. Damage to tire could occur.

A solution of water and calcium chloride provides safe, economical ballast. Used properly, it will not damage tires, tubes, or rims.

Use calcium chloride to prevent water from freezing. A mixture of 0.4 kg per liter (3.5 lb of calcium chloride per gal) will not freeze solid above -45°C (-50°F).

NOTE: Use of alcohol as liquid ballast is not recommended. Calcium chloride solution is heavier and more economical.

Fill tubeless tires slightly above valve level (minimum 75 percent full). Less solution would expose part of rim, possibly causing corrosion. Tube-type tires may be filled to any level below 90 percent.

Charts on this page show how much each tire size holds if filled to 75 percent full.

LIQUID WEIGHT FOR FRONT TIRES With 0.6 kg/L (5 lb/gal) Calcium Chloride Solution	
2-WD	
Tire Size	Liquid Weight per Tire kg (lb)—75% Full
6.50-16	34 (74)
7.50-16	49 (107)
9.5L-15	54 (120)
27/9.5L-15	91 (200)
11L-15	67 (147)
25/10LL-15	27 (60)
27/12LL-15	37 (82)
MFWD	
Tire Size	Liquid Weight per Tire kg (lb)—75% Full
9.5-16	60 (133)
8.3-24	60 (133)
9.5-24	85 (187)
10.5/80-18	97 (213)
11.2-24	115 (253)
12.5/80-18	51 (112)
12LL-16	97 (213)
12.4-24	140 (308)
13.6-24	172 (379)

Continued on next page

MX,BAIP,YA3 -19-18FEB00-1/2

Ballast

LIQUID WEIGHT FOR REAR TIRES With 0.6 kg/L (5 lb/gal) Calcium Chloride Solution	
Tire Size	Liquid weight per Tire kg (lb)—75% Full
13.6-28	212 (467)
14.9-24	230 (574)
14.9-28	260 (574)
15.5-38	301 (663)
16.9-24	297 (654)
16.9-28	339 (747)
16.9-30	357 (787)
18.4-16.1	236 (520)
18.4-30	414 (912)
19.5-24	322 (710)
21.5L-16.1	306 (675)
22.5LL-16.1	306 (675)
9.4R48 (Hi Crop)	365 (805)

MX,BAIP,YA3 -19-18FEB00-2/2

Using Implement Codes



CAUTION: DO NOT attempt to transport an implement without adequate front ballast. Lack of steering control may result.

John Deere engineers have developed a code to determine how much front ballast is needed for stability and steering control.

1. Find implement code in implement operators manual.
2. Use the following chart to determine how many QUIK-TATCH™ front weights are required on your tractor model.

To use chart, find the implement code range in the left-hand column into which your implement code fits. Then move to the right until you are beneath the column which identifies your tractor configuration. The number you find at this point in the chart is the number of QUIK-TATCH™ weights needed.

For example, an implement with a code 100 to be used on an MFWD tractor with a quick-coupler, but without liquid in the front tires, requires 4 front weights.

With maximum front ballast, do not attempt to transport an implement whose code exceeds:

- 115 for 2-WD Tractor
- 137 for MFWD Tractor

NUMBER OF QUIK-TATCH™ WEIGHTS NEEDED		
2-WD		
Implement Code	Without Liquid in Front Tires	With Liquid in Front Tires
0—65	0	—
66—75	2	0
76—85	4	2
86—95	6	4
96—105	8	6
106—115	—	8
MFWD		
Implement Code	Without Liquid in Front Tires	With Liquid in Front Tires
0—87	0	—
88—97	2	0
98—107	4	2
108—117	6	4
118—127	8	6
128—137	—	8

Wheels, Tires and Treads

Service Tires Safely

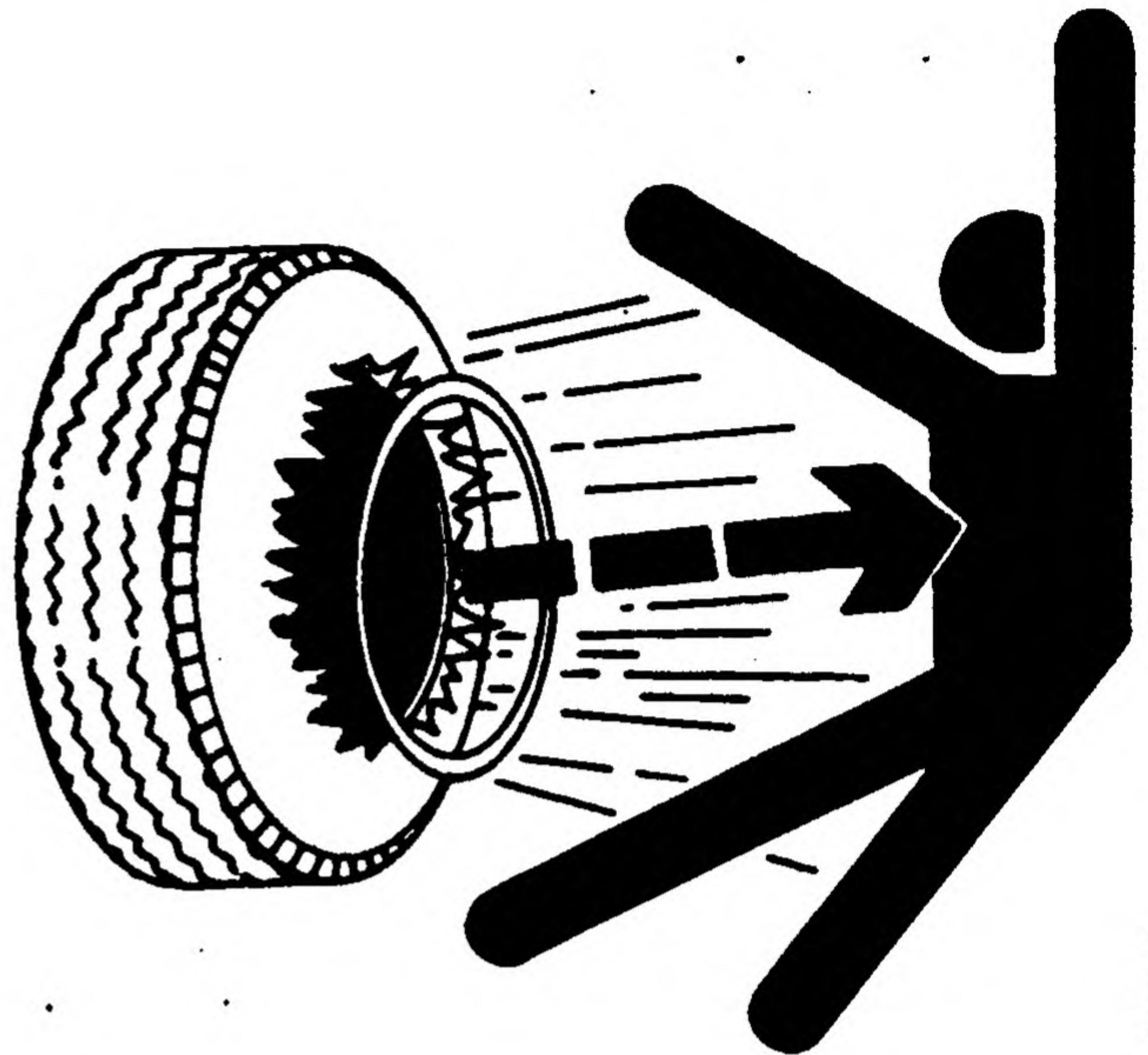
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



TS211 -UN-23AUG88

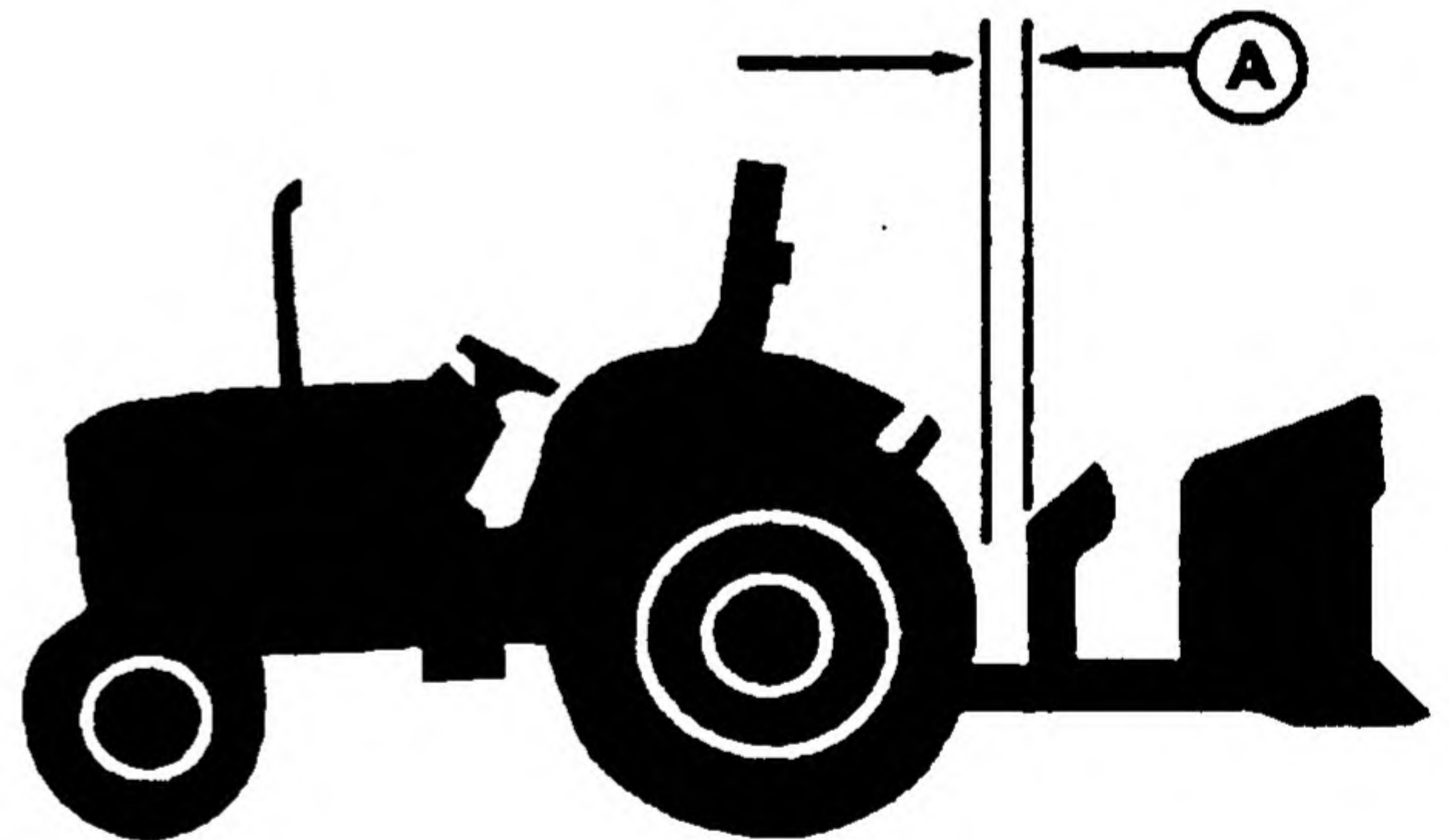
DX,RIM -19-24AUG90-1/1

Check Implement-to-Tire Clearance

IMPORTANT: Check for adequate clearance (A) between outside diameter of the tire and implement with hitch in raised position.

When large diameter rear tires are installed on a tractor with a 3-Point Hitch, a quick coupler or similar device is required to provide adequate implement-to-tire clearance.

A—Clearance



M47177 -UN-31JAN92

MX,WTIP,AA1 -19-21APR94-1/1

Check Tire Inflation Pressure

Check tires daily for damage or noticeably low pressure.

At least every 100 hours of operation, check inflation pressure with a gauge. Use an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations.

If tires contain liquid ballast, use a special air-water gauge and measure with valve stem at bottom.

NOTE: When furrow plowing or during hillside operation, tire pressure can be increased 28 kPa (0.28 bar) (4 psi) ABOVE maximum to prevent tire wrinkling or buckling.

IMPORTANT: Always check inflation pressure with an accurate tire gauge to prevent over-inflation. Over-inflation reduces performance and increases strain of both tire and rim.

NOTE: Following inflation information applies to both front and rear tires and Tire Inflation Pressure Chart.

1. All inflation pressures are calculated for 29 km/h (18 mph) travel speeds for both diagonal (bias) ply and radial ply tires.

2. Operation of tires at the inflation pressures listed on chart will result in optimum tractive performance of the tire/vehicle system. Correctly inflated radial tires will show a large deflection of the sidewall or "cheeks". This is normal and will not hurt the tire if the inflation pressure is maintained.

3. Inflation pressures less than 80 kPa (12 psi) should be monitored regularly because of the increased risk of low pressure air leaks (especially due to leaking valve cores).

4. Tractors operating on steep side slopes should increase inflation pressures 28 kPa (4 psi) above the values listed to compensate for lateral weight transfer.

5. Tires run as singles in high traction conditions sometimes experience bead slip if the bead was not fully seated or if too much lubricant was used to mount the tire. Increasing the inflation pressure will compensate for this condition but will not cause reduced traction. Consult your tire dealer if this problem occurs.

6. If higher load capacities are needed, contact your John Deere dealer for tire manufacturers load and inflation table information.

MX.WTIP,BA1 -19-29JUL94-1/1

Tire Inflation Pressure Chart

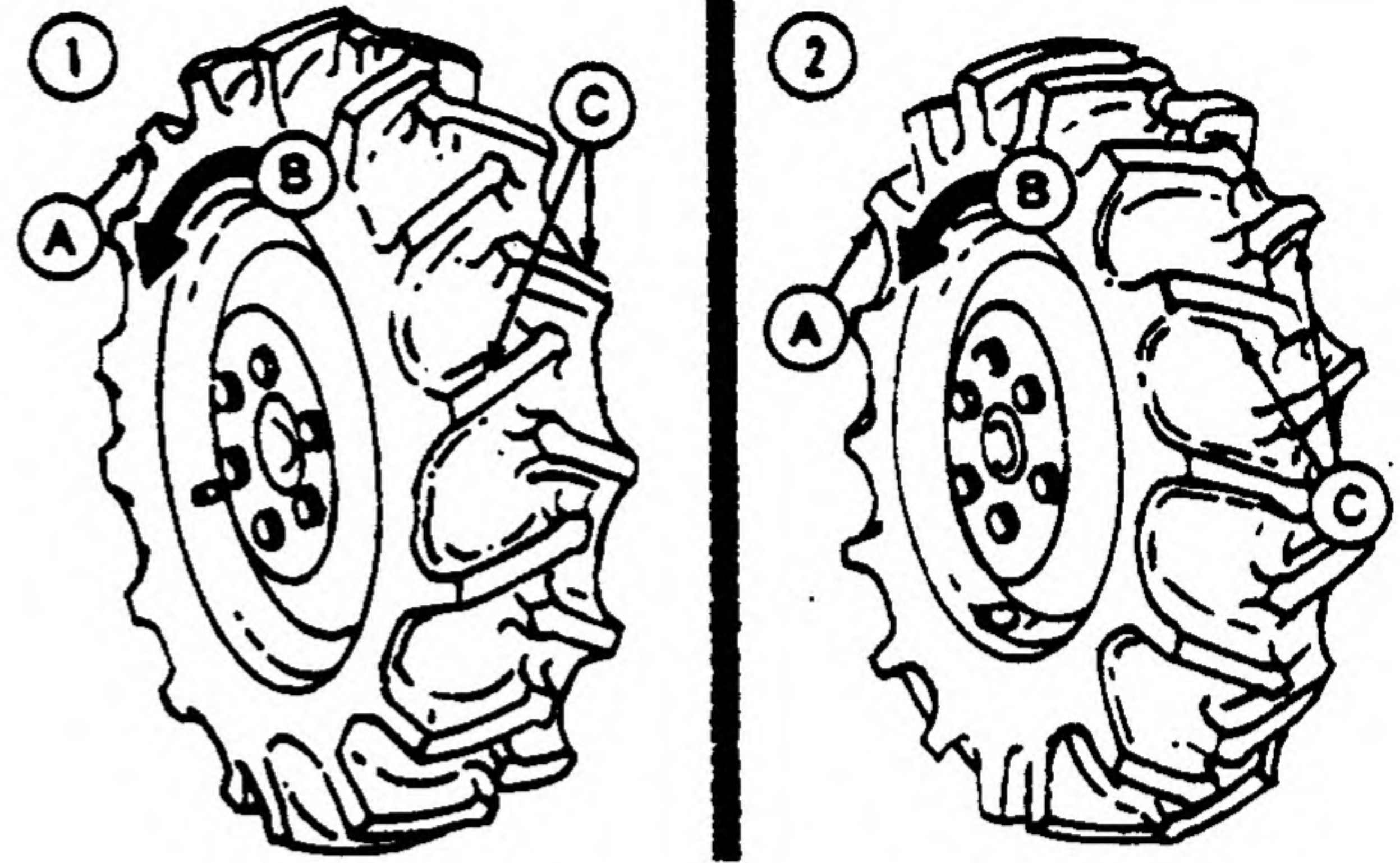
Front Tires			With Little or No Added Weight			With Maximum Ballast or Heavy Mounted Implement		
Tire Size	Ply Rating	Tread	kPa	(bar)	(psi)	kPa	(bar)	(psi)
11L-15	8	F3	170	(1.7)	(24)	303	(3.0)	(44)
11.2-24	6	R1	83	(0.83)	(12)	180	(1.8)	(26)
6.50-16	6	F2	170	(1.7)	(24)	331	(3.3)	(48)
7.50-16	6	F2	170	(1.7)	(24)	303	(3.0)	(44)
8.3-24	4	R1, R3	140	(1.4)	(20)	152	(1.5)	(22)
9.5L-16	4	R1	83	(0.83)	(12)	138	(1.4)	(20)
9.5-16, -24	6	R3, R1	83	(0.83)	(12)	207	(2.1)	(30)
9.5-15	6	F2	170	(1.7)	(24)	250	(2.5)	(36)
27/9.50-15	6	I1	170	(1.7)	(24)	310	(3.1)	(45)
13.6-24	6	R1	83	(0.83)	(12)	152	(1.5)	(22)
12LL-16	6	Turf Special	41	(0.41)	(6)	41	(0.41)	(6)
25/10LL-15	6	"Smoothie"	69	(0.69)	(10)	69	(0.69)	(10)
9.5R32	4 Star 8	R1	359	(3.6)	(16)	359	(3.6)	(16)
27/12LL-15	6	I1	69	(0.69)	(10)	310	(3.1)	(45)
10.5/80-18	10	I3	103	(1.03)	(15)	331	(3.3)	(48)
12.5/80-18	10	I3, R4	103	(1.03)	(15)	310	(3.1)	(45)
12.4-24	6	RI	83	(0.83)	(12)	221	(2.2)	(32)
Rear Tires			With Little or No Added Weight			With Maximum Ballast or Heavy Mounted Implement		
Tire Size	Ply Rating	Tread	kPa	(bar)	(psi)	kPa	(bar)	(psi)
13.6-28	4	R1	83	(0.83)	(12)	97	(0.97)	(14)
14.9-28	6	R1	83	(0.83)	(12)	138	(1.4)	(20)
16.9-24, -28, -30	6	R1, R3, R4	83	(0.83)	(12)	124	(1.2)	(18)
18.4-30	6	R1	83	(0.83)	(12)	110	(1.1)	(16)
15.5-38	6	R1	83	(0.83)	(12)	140	(1.4)	(20)
21.5L-16.1	6	R3	83	(0.83)	(12)	83	(0.83)	(12)
19.5L-24	10	R4	83	(0.83)	(12)	165	(1.65)	(24)
22.5LL-16.1	6	Turf Special	41	(0.41)	(6)	41	(0.41)	(6)
9.5R-48 Hi-Crop	4 Star 10	R1	83	(0.83)	(16)	359	(3.6)	(52)

MX,WTIP,B1A3A -19-08JUN99-1/1

Selecting Front Tire Rolling Direction

1. Under most conditions, front tires should be mounted with the direction of the tire lugs the same as the tire rolling direction.
2. If tractor is mainly used for loader operations, lug direction may be reversed on the MFWD axle for improved tire wear.

A—Left-Hand Tire Viewed From Rear
B—Rolling Direction of Tire
C—Tire Lugs



RW510 -UN-06APR89

MX,WTIP,HA2 -19-24JUL95-1/1

Tighten Wheel/Axle Hardware Correctly



CAUTION: NEVER operate tractor with a loose rim, wheel, hub, or axle.

Any time hardware is loosened, tighten to specified torque.

NOTE: Follow checking procedure when a new tractor is first used, or wheels have been off.

1. After driving tractor about 100 m (109 yd), and before placing it under load, tighten hardware to specified torque.
2. Check hardware after working three hours and again after 10 hours.
3. Check all hardware frequently and keep it tight.

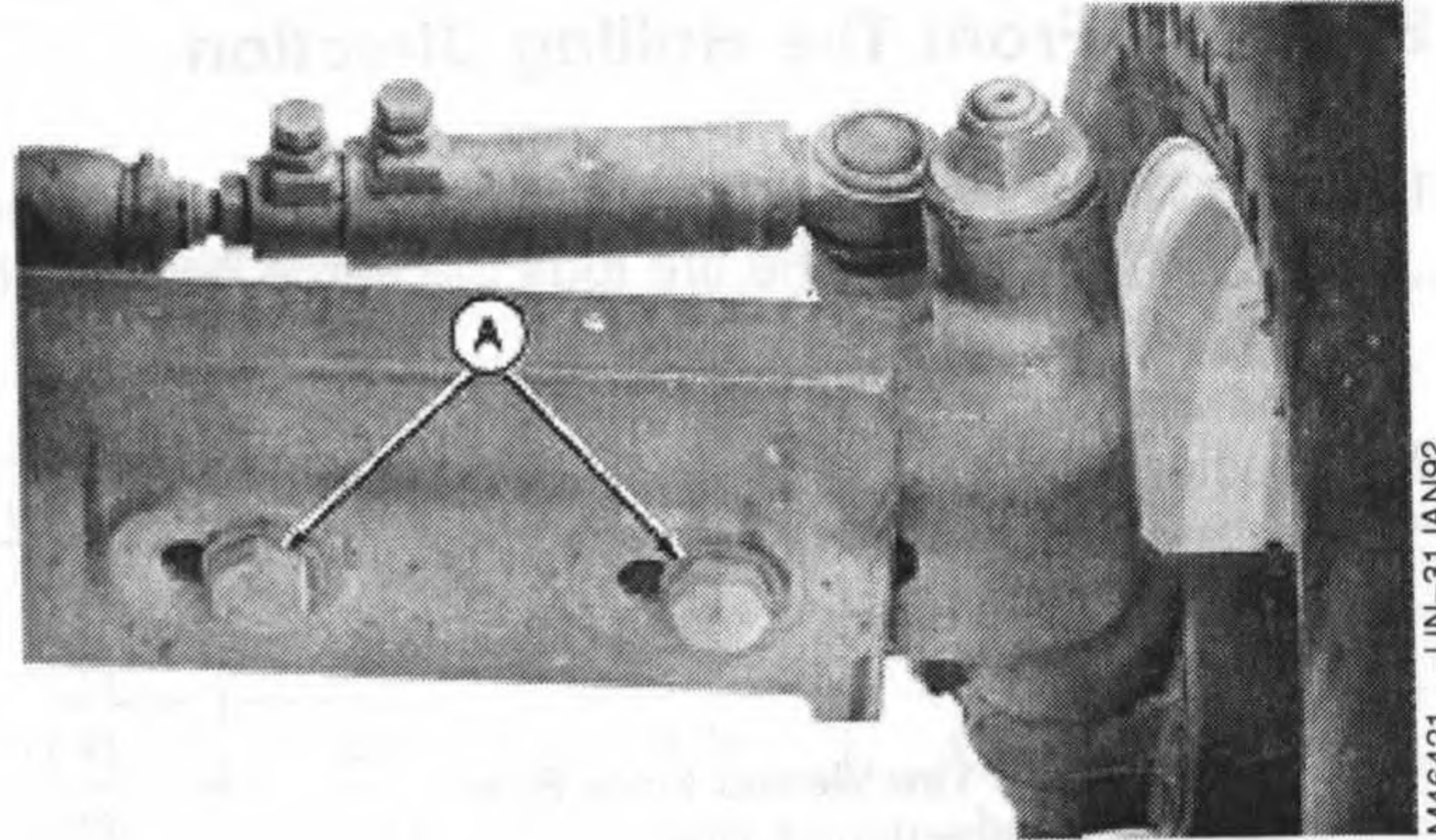
LV,5010WT,I -19-09SEP97-1/1

Tighten Bolts—Adjustable Front Axle

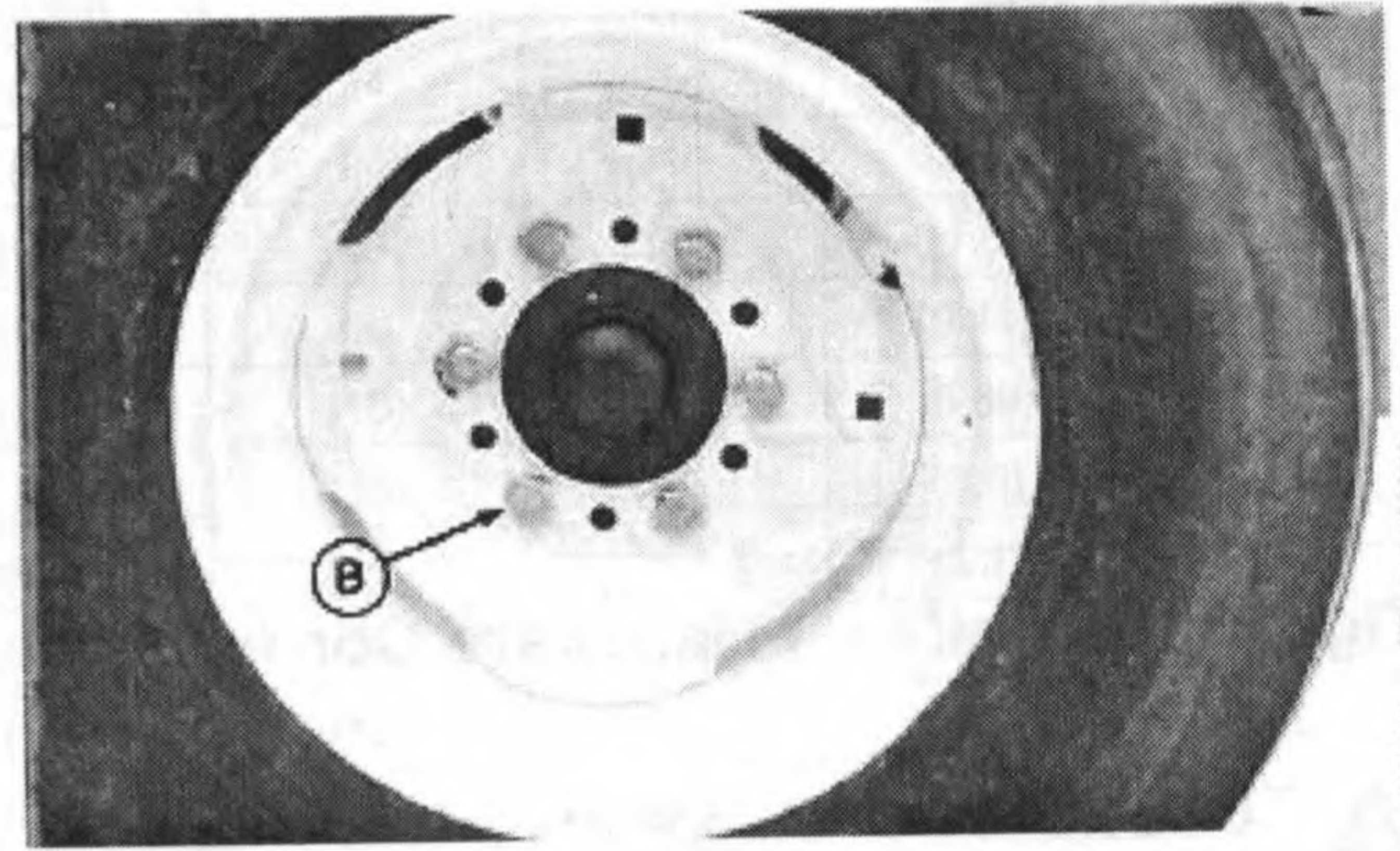
Tighten bolts in the following locations to specifications:

	Specification
Adjustable Front Axle—	480 N•m (350 lb-ft)
Axle-to-Knee Bolts Torque	
Adjustable Front Axle—	175 N•m (130 lb-ft)
Disk-to-Flange Bolts Torque	

A—Axle-to-Knee
B—Disk-to-Flange



M46421 -UN-31JAN92



M46420 -UN-31JAN92

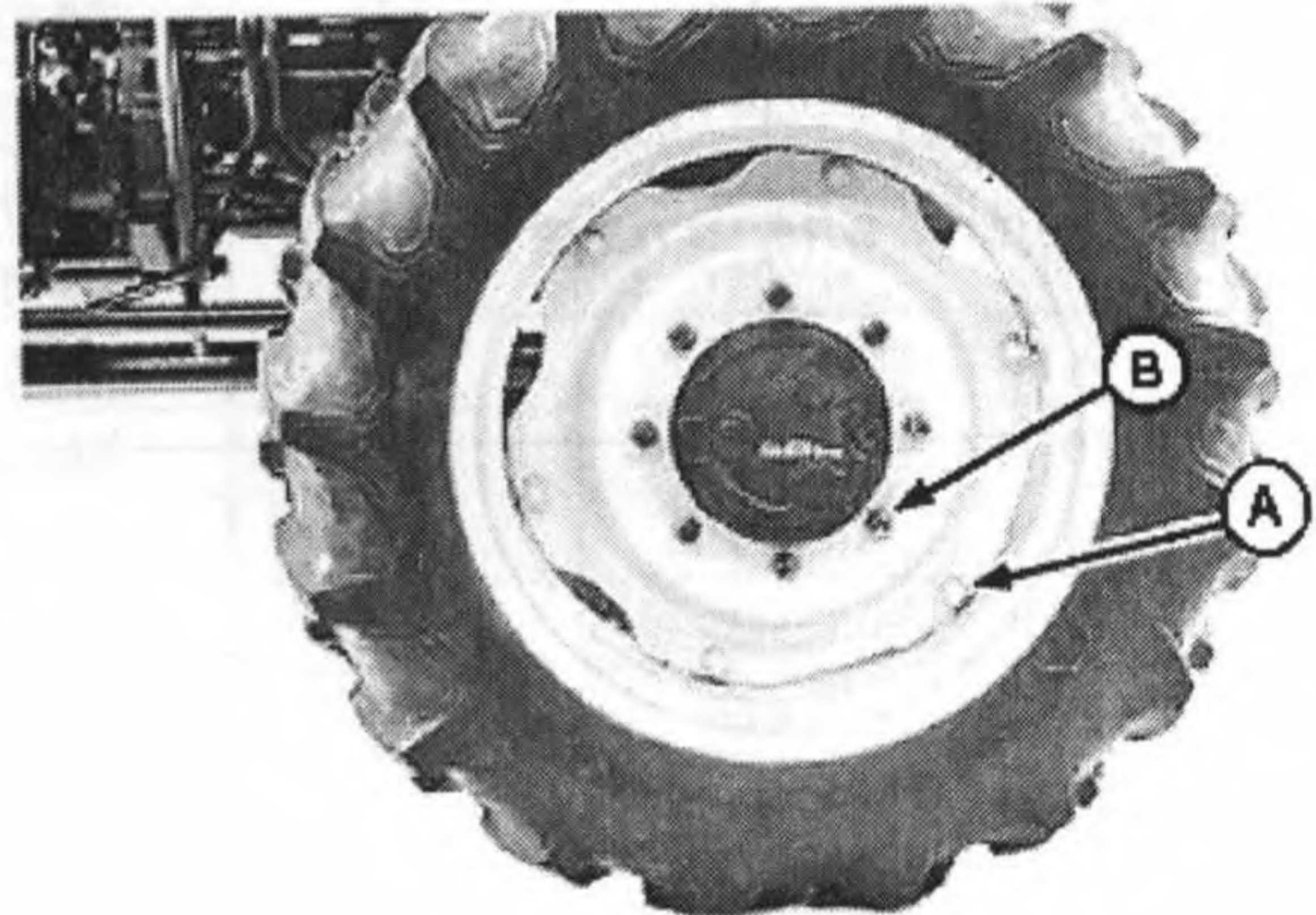
MX,WTIP,C1A3 -19-10JAN96-1/1

Tighten Bolts—MFWD Axle

Tighten bolts in the following locations to specifications:

	Specification
MFWD Axle Rim-to-Disk Bolts	245 N•m (180 lb-ft)
Torque	
MFWD Axle Disk-to-Flange Bolts	300 N•m (220 lb-ft)
Torque	

A—Rim-to-Disk Bolts
B—Disk-to-Flange Bolts



LV1975 -UN-27AUG97

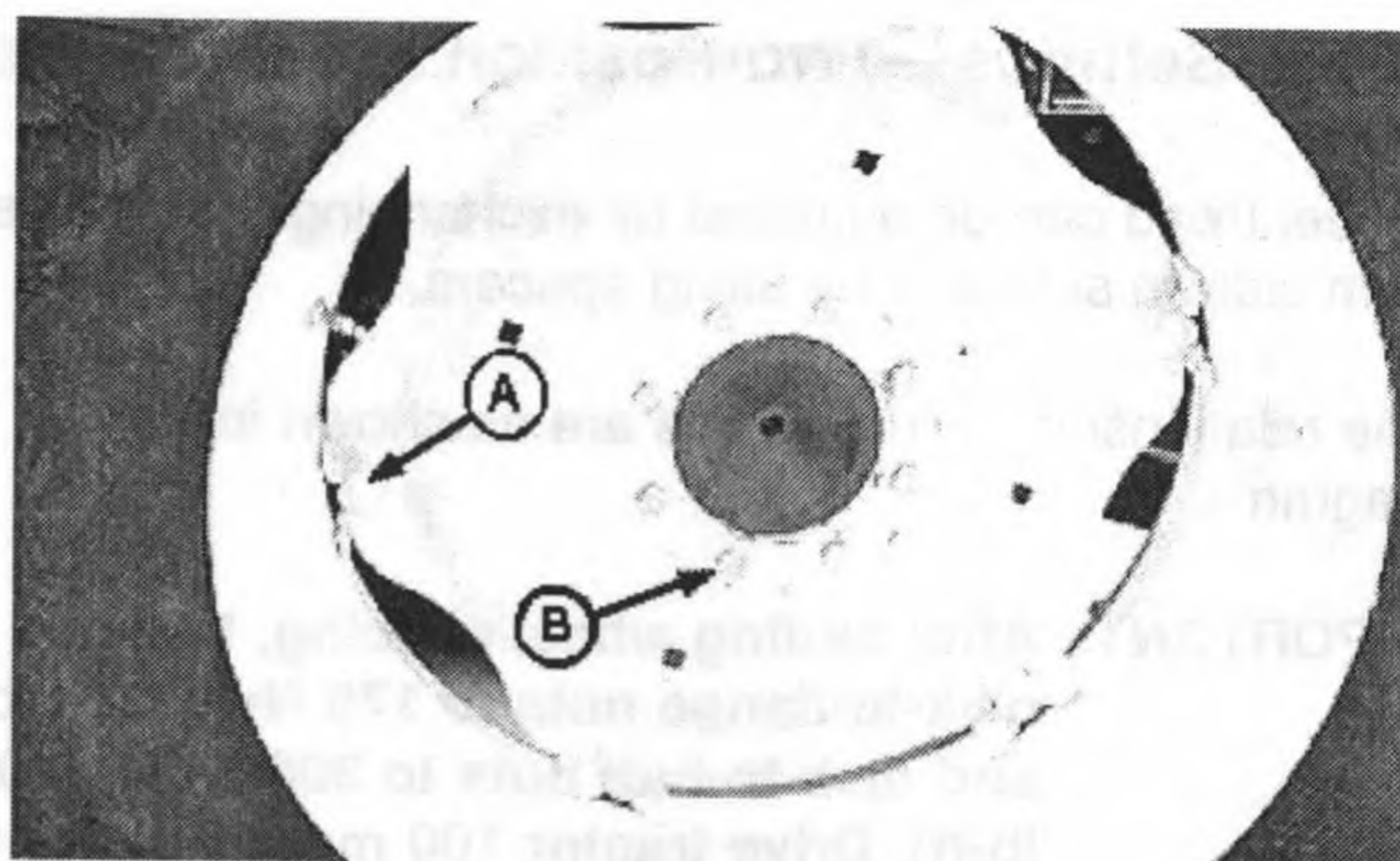
LV,5010WT,H -19-29AUG97-1/1

Tighten Bolts—Rear Axle

Tighten bolts in the following locations to specifications:

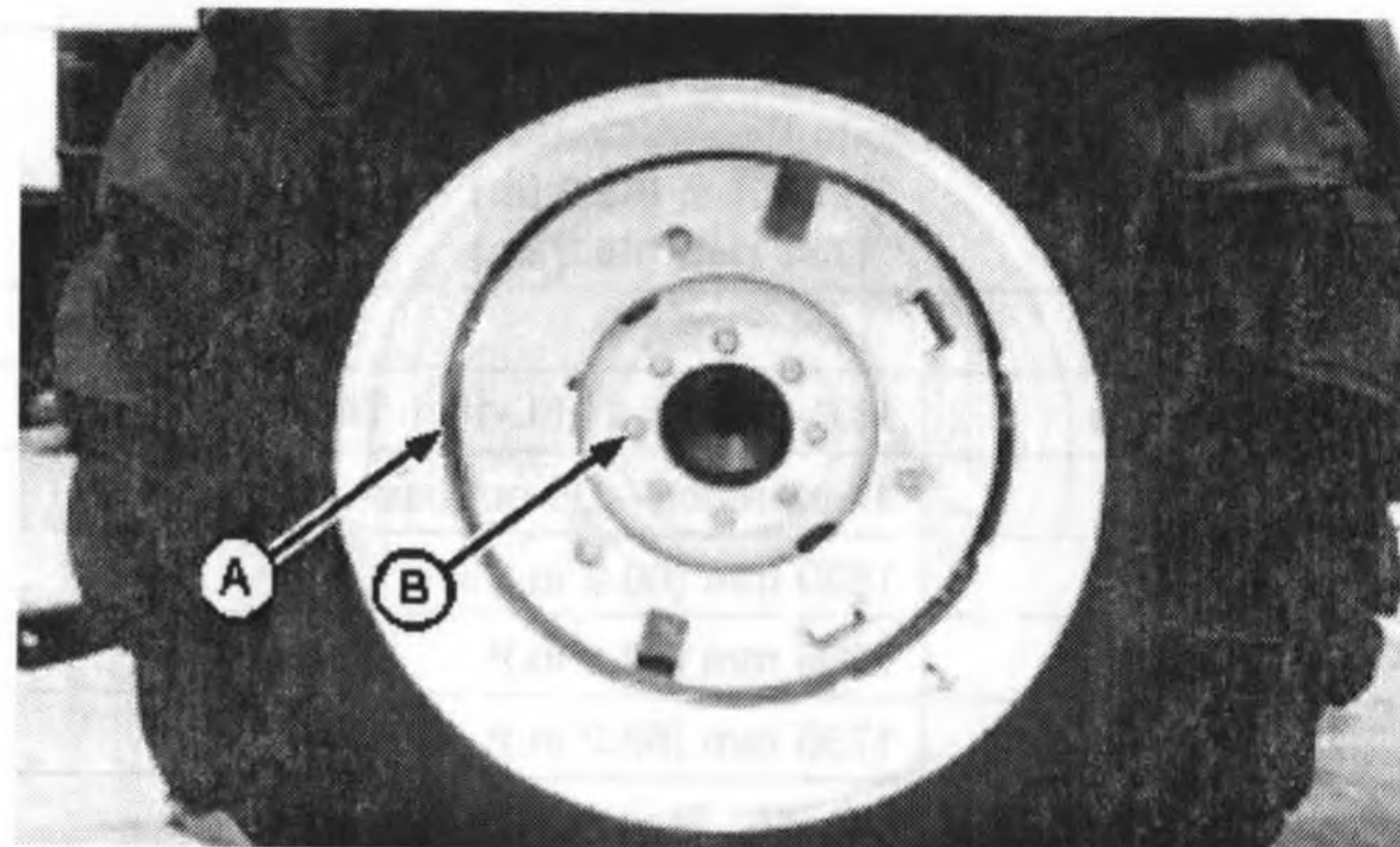
Specification	
Rear Axle Rim-to-Disk (Steel Disk) Torque	245 N•m (180 lb-ft)
Rear Axle Disk-to-Flange (Steel..... Disk) Torque	175 N•m (130 lb-ft)
Rear Axle Rim-to-Disk (Cast..... Disk) Torque	215 N•m (160 lb-ft)
Rear Axle Disk-to-Flange (Cast Disk) Torque	225 N•m (165 lb-ft)
Rear Axle Rim-to-Disk (Hi-Crop Disk) Torque	235—250 N•m (175—185 lb-ft)
Rear Axle Disk-to-Flange (Hi-Crop Disk) Torque	200 ± 40 N•m (148 ± 30 lb-ft)

A—Rim-to-Disk Bolts
B—Disk-to-Flange Bolts



Steel Disk

LV1947 -UN-28APR97



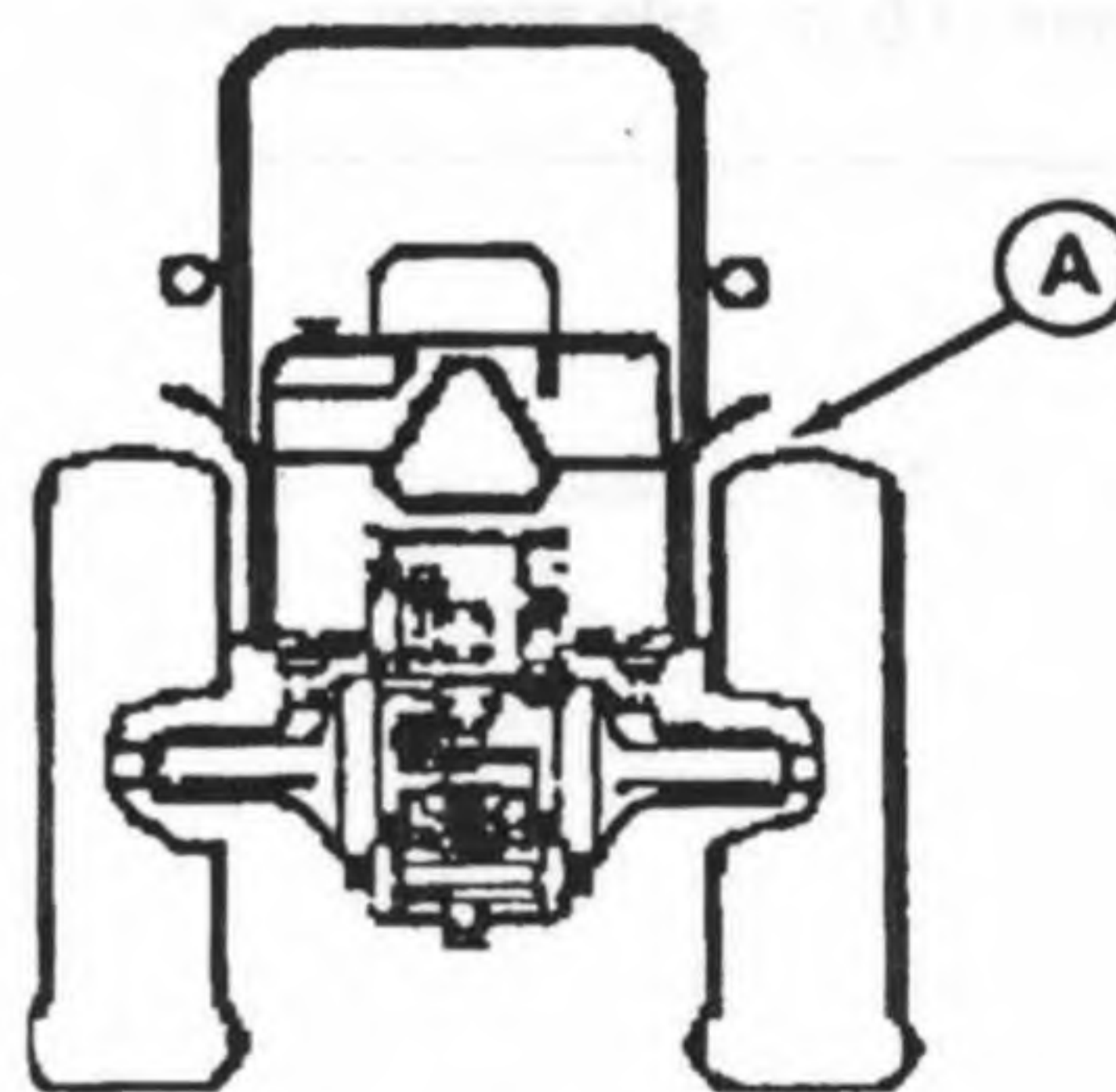
Cast Disk

LV1948 -UN-28APR97

LV.5010WT,A -19-08JUN99-1/1

Observe Rear Wheel Tread Width Limitations

IMPORTANT: Tires must have at least 25 mm (1 in.) clearance with fenders (A). When large diameter rear tires are installed, check clearance between tire and fenders.



M47179 -UN-31JAN92

MX.WTIP,DA1 -19-23JUN94-1/1

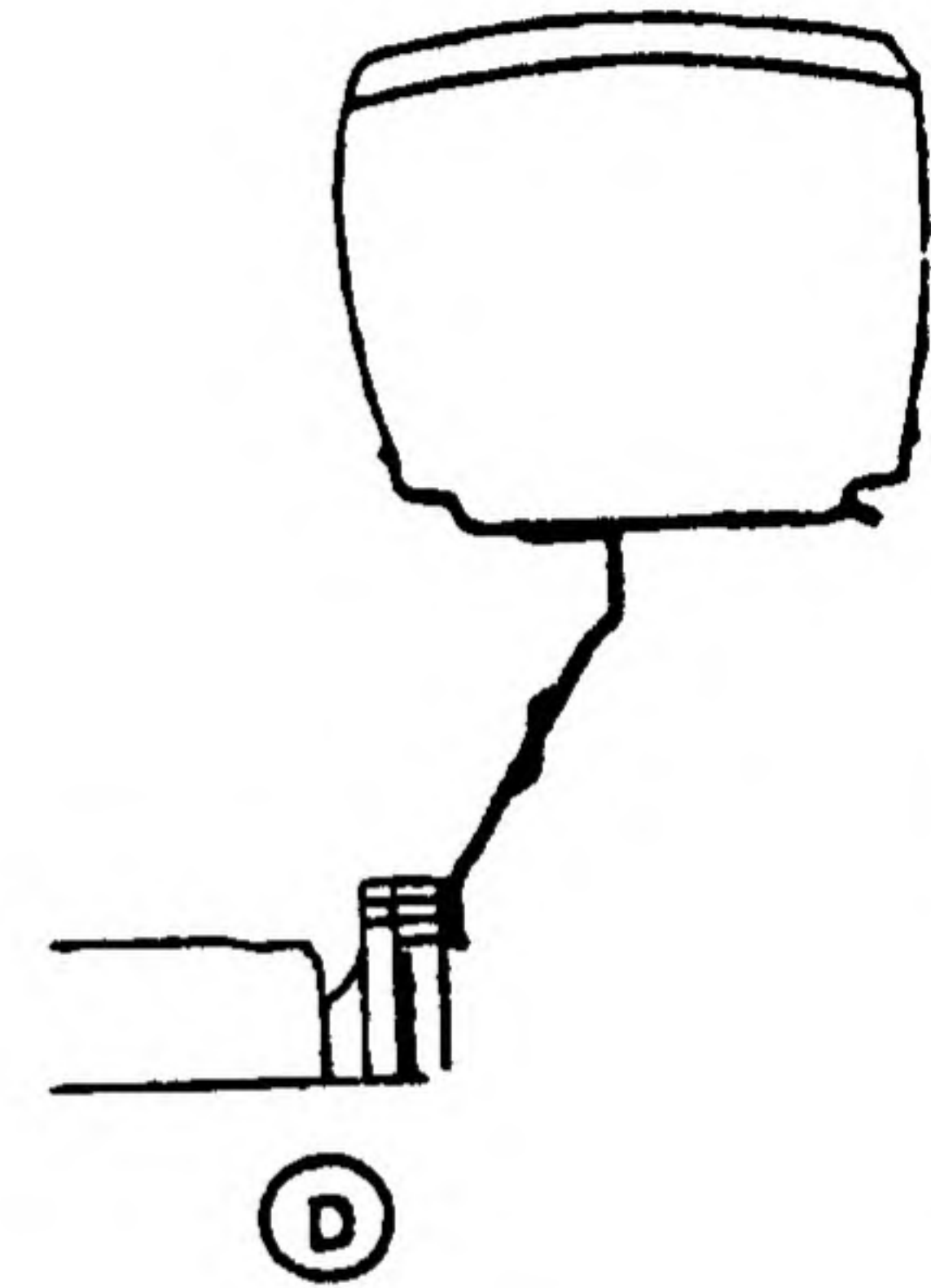
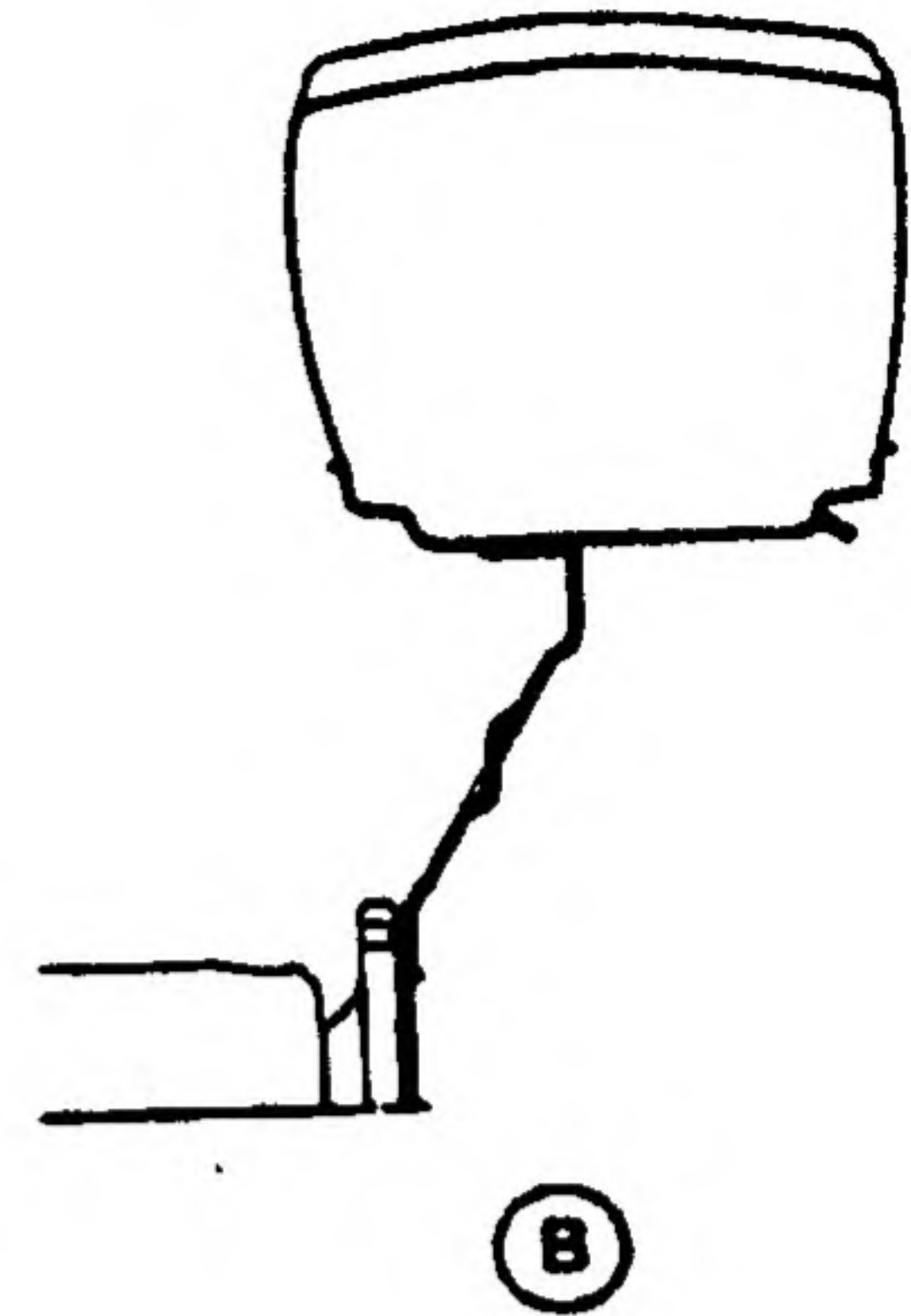
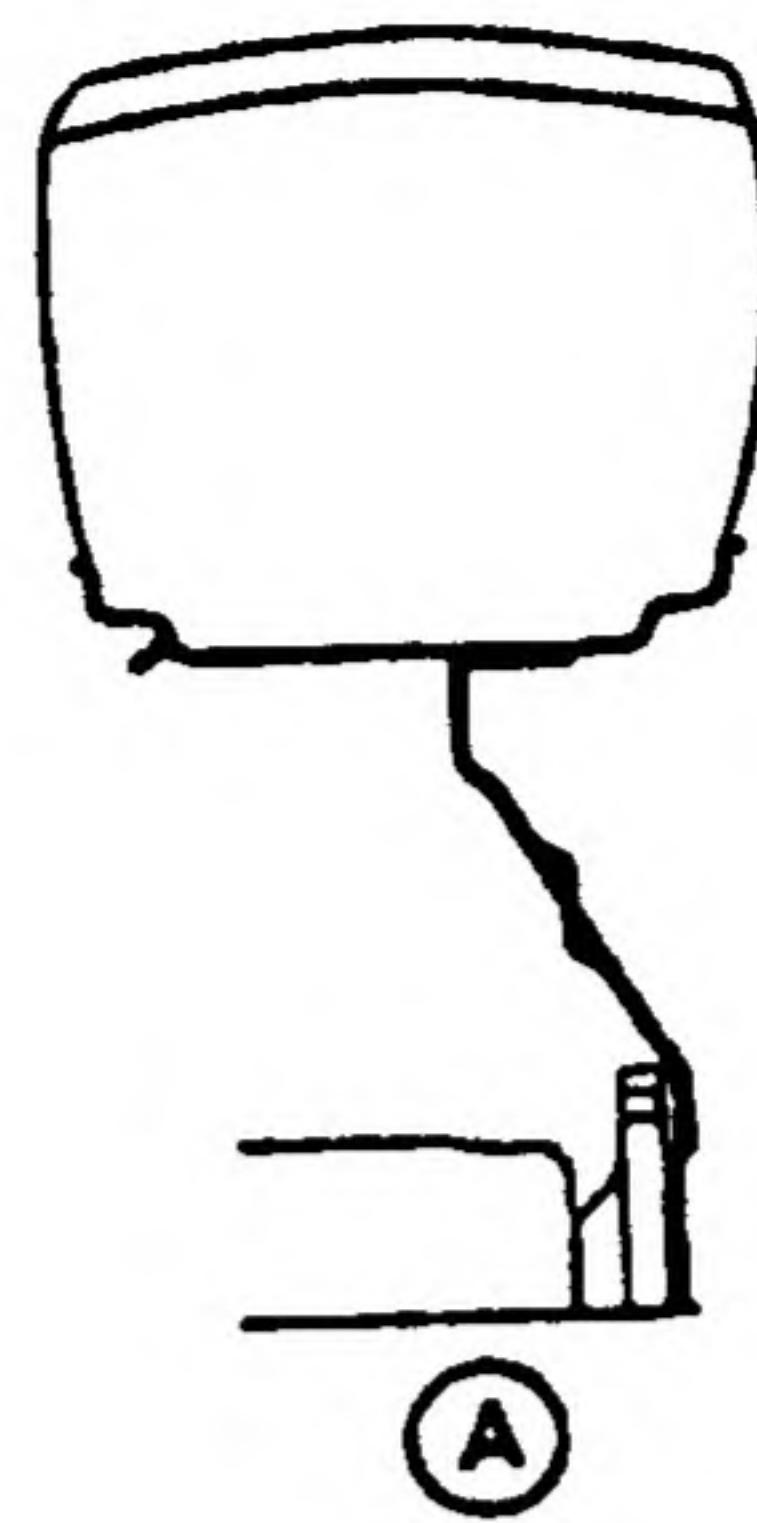
Tread Settings—Two-Position Steel Wheels

Wheel tread can be adjusted by exchanging the wheels from side to side and by using spacers.

The relationship of the wheels are as shown in the diagrams.

IMPORTANT: After setting wheel spacing, tighten disk-to-flange nuts to 175 N•m (130 lb-ft) and disk-to-hub nuts to 300 N•m (220 lb-ft). Drive tractor 100 m (109 yd) and tighten again.

TREAD WIDTH Centerline-to-Centerline		
1605 mm (63.2 in.)		
1733 mm (68.2 in.)		
REAR		
Diagram	18.4-16 and 21.5L-16.1 Tires	
A	Interference—Do not use	
B	1530 mm (60.2 in.) <i>21.5 = 82.7</i>	
C	1605 mm (63.2 in.) ^a	
D	1733 mm (68.2 in.) ^a	
MFWD (55° Steering Angle)		
Diagram	9.5-16 Tire	10.5-18 Tire
A	1549 mm (61.0 in.)	1542 mm (60.7 in.)
B	1710 mm (67.3 in.)	1714 mm (67.5 in.)
^a Requires 102 mm (4.0 in.) axle spacer. (See your John Deere Dealer.)		



M47178 -UN-31JAN92

MX,WTIP,EA4 -19-04MAR96-1/1

Tread Settings—Multi-Position Rear Wheels (Steel, Cast and Hi-Crop Disks)

Wheel tread on rear axle with multi-position wheels can be adjusted by repositioning or exchanging the rims or by reversing the wheel disks.

Wheel tread can also be adjusted by exchanging the complete wheel to the opposite side of the tractor (This maneuver permits the change from disk-dished-in to disk-dished-out operations without disassembling the wheel). When changing rear wheels from one side to the other, the arrow on side wall of tire points in the direction of forward rotation.

The relationship of the wheel disk and rim in obtaining the different tread settings is shown in the diagrams on the facing page.

NOTE: A1 is a steel disk and A2 is a cast disk (unless otherwise noted).

A study of these diagrams, before attempting to change tread settings, will save unnecessary labor.

Continued on next page

MX,WTIP,FA2A -19-08JUN99-1/4

IMPORTANT: After setting wheel spacing, tighten rim-to-disk and disk-to-flange bolts. Drive tractor 100 m (109 yd) and tighten again.

Specification

Multi-Position Rear Wheels.....	245 N•m (180 lb-ft)
Rim-to-Disk (Steel Disk) Torque	
Multi-Position Rear Wheels.....	175 N•m (130 lb-ft)
Disk-to-Flange (Steel Disk) Torque	
Multi-Position Rear Wheels.....	215 N•m (160 lb-ft)
Rim-to-Disk (Cast Disk) Torque	
Multi-Position Rear Wheels.....	225 N•m (165 lb-ft)
Disk-to-Flange (Cast Disk) Torque	
Rear Axle Rim-to-Disk (Hi-Crop Disk) Torque	235—250 N•m (175—185 lb-ft)
Rear Axle Disk-to-Flange (Hi-Crop Disk) Torque	200 ± 40 N•m (148 ± 30 lb-ft)

NOTE: Tread settings are measured at bottom of centerline.

STEEL AND CAST DISKS REAR TREAD WIDTH Centerline-to-Centerline				
STEEL DISK			CAST DISK	
Diagram	Tire Sizes		Diagram	Tire Sizes
	13.6-28 14.9-24 14.9-28 16.9-24 16.9-28	16.9-30 18.4-30		16.9-30 18.4-30 15.5-38
A1	Not available	Not available	A2	Not available
B1	Not available	Not available	B2	Not available
C1	Not available ^a	Not available	C2	Not available
D1	1417 mm (55.8 in.)	1366 mm (53.8 in.)	D2	Not available
E1	1513 mm (59.6 in.)	1563 mm (61.5 in.)	E2	1535 mm (60.4 in.)
F1	1617 mm (63.7 in.)	1665 mm (65.6 in.)	F2	1634 mm (64.3 in.)
G1	1716 mm (67.6 in.)	1668 mm (65.7 in.)	G2	1729 mm (68 in.)
G1 ^b	1919 mm (75.6 in.)	1871 mm (73.7 in.)	G2 ^b	1933 mm (76.1 in.)
^a 1313 mm (51.7 in.) for 14.9-24, 36.6-28 and 14.9-28 tires only.				
^b Requires 102 mm (4.0 in.) axle spacers.				

Wheels, Tires and Treads

STEEL AND CAST DISKS REAR TREAD WIDTH Centerline-to-Centerline

STEEL DISK

CAST DISK

Diagram	Tire Sizes		Diagram	Tire Sizes
H1	1820 mm (71.7 in.)	1770 mm (69.7 in.)	H2	1838 mm (72.4 in.)
H1 ^b	2024 mm (79.7 in.)	1973 mm (77.7 in.)	H2 ^b	2042 mm (80.4 in.)

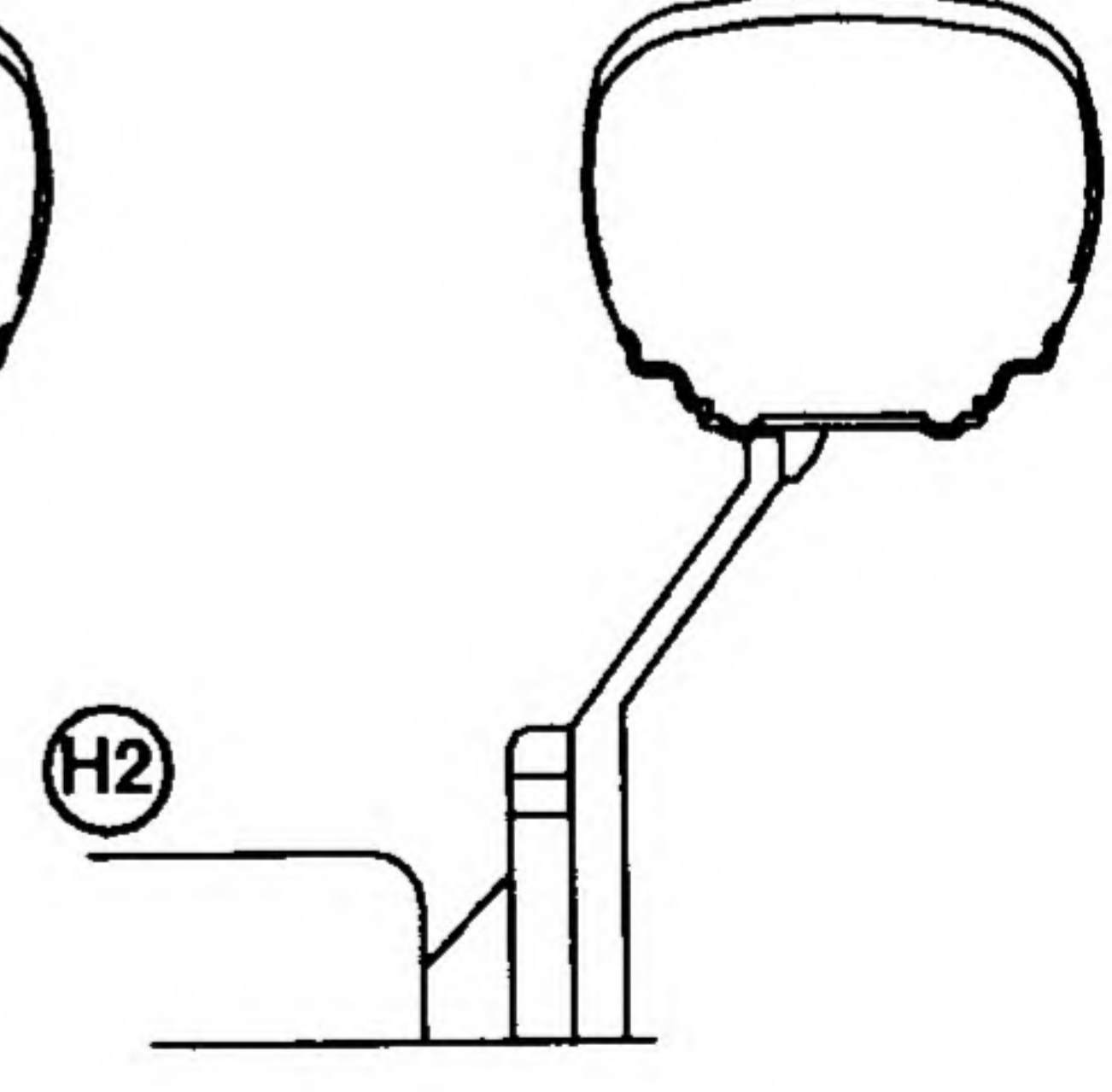
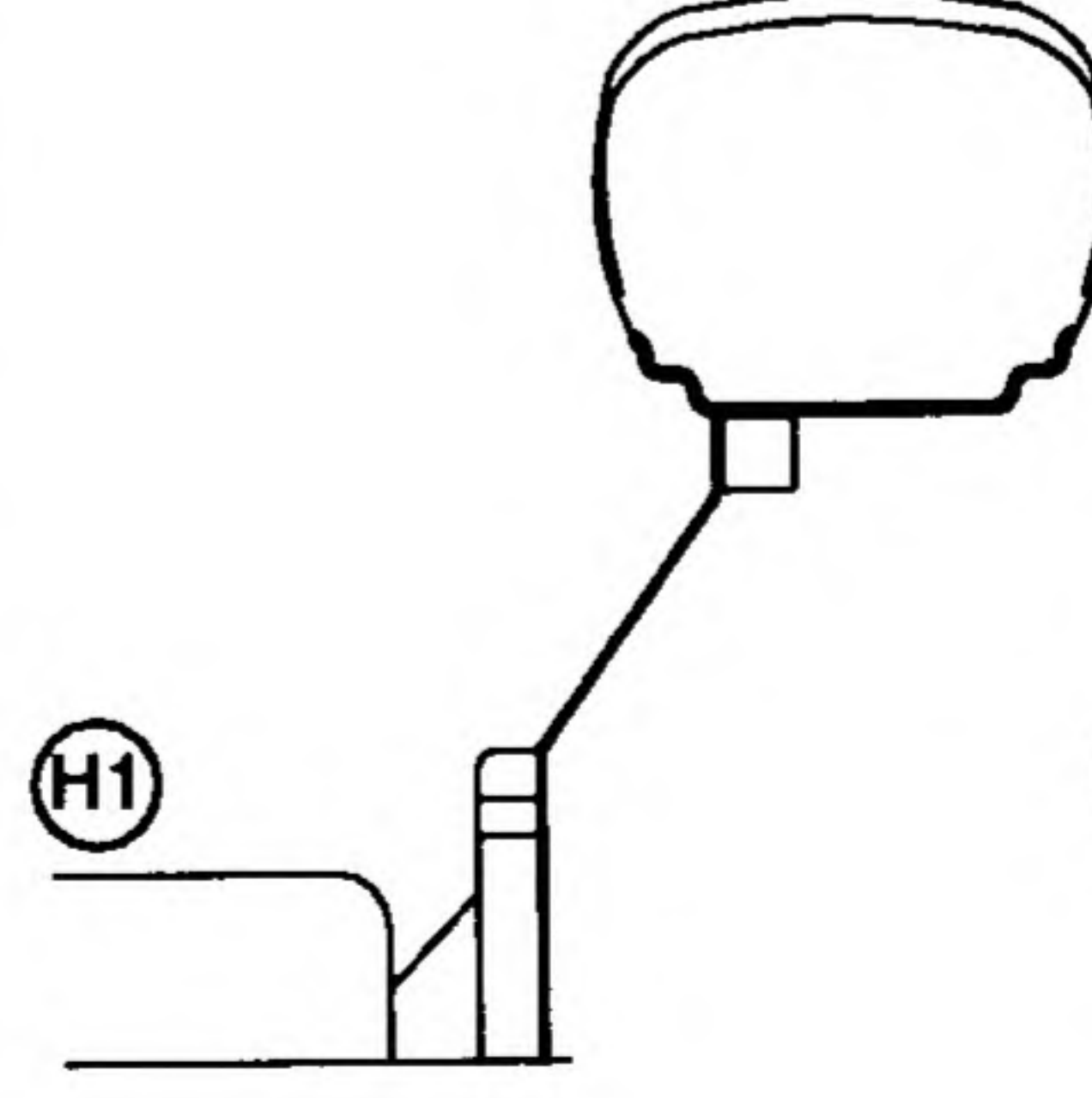
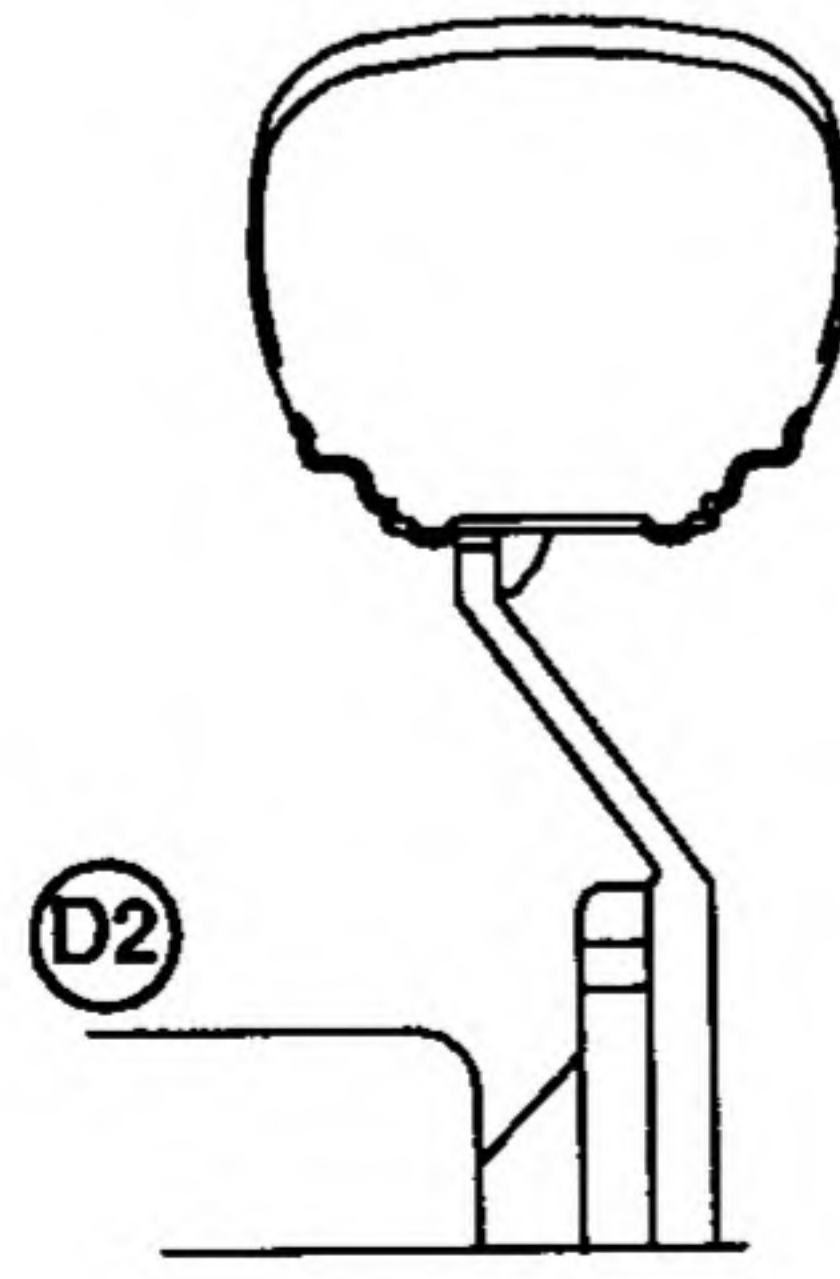
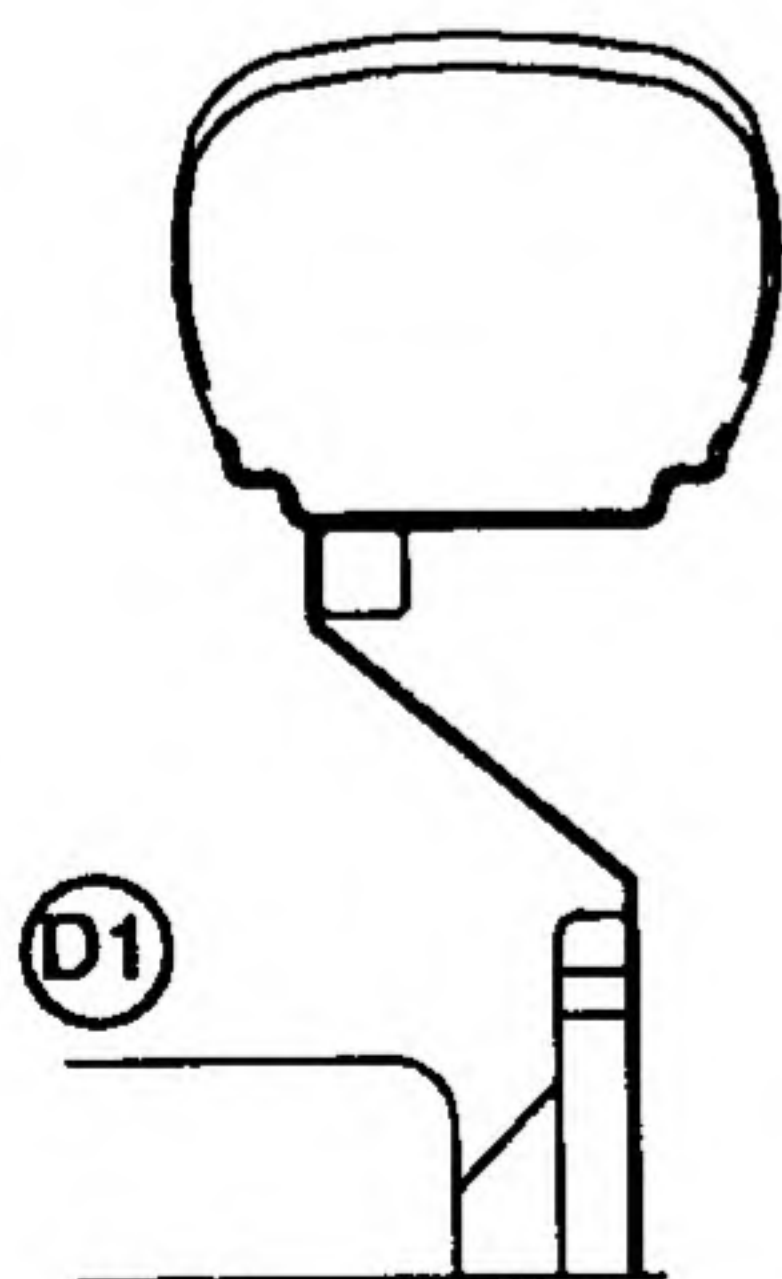
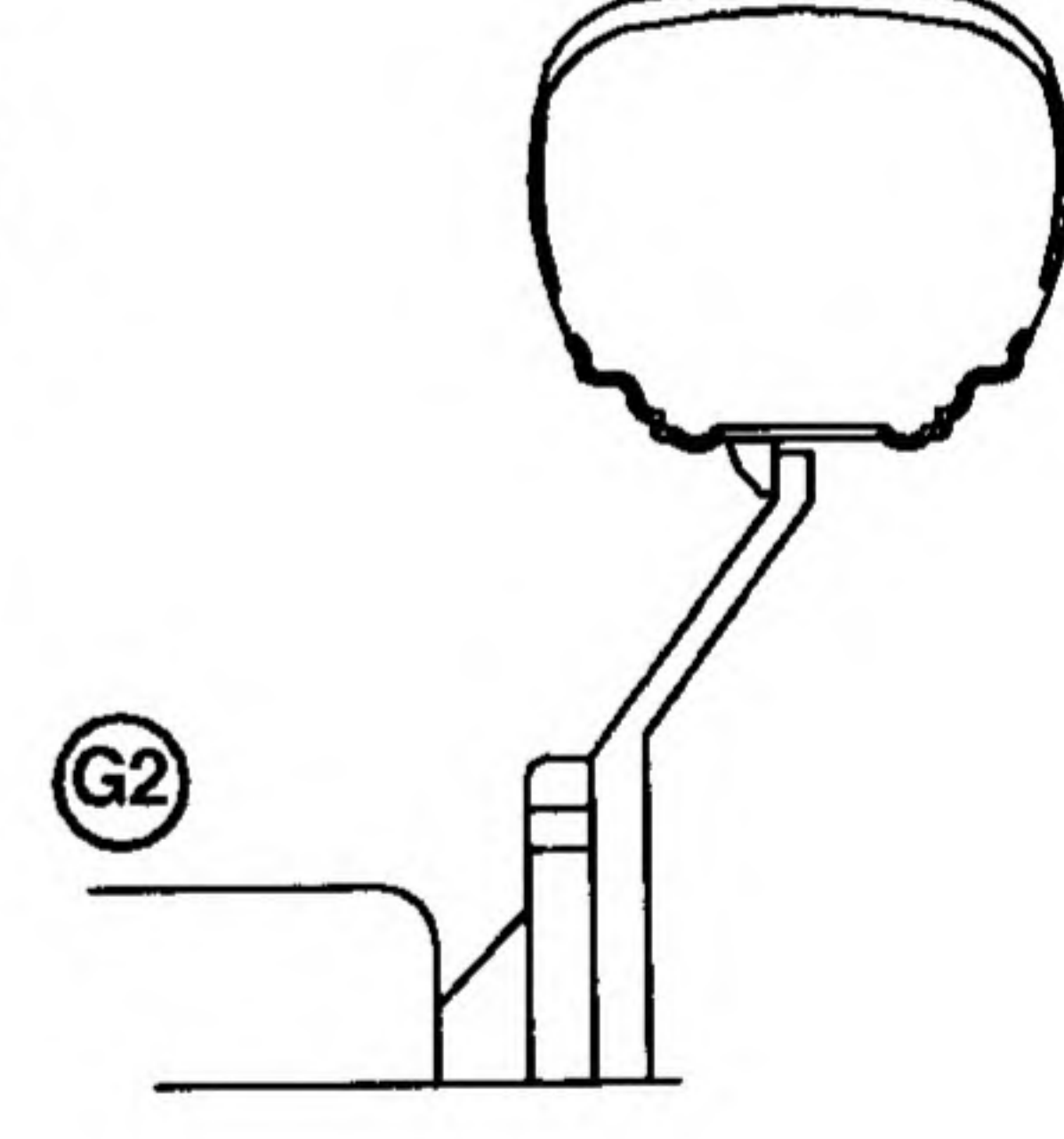
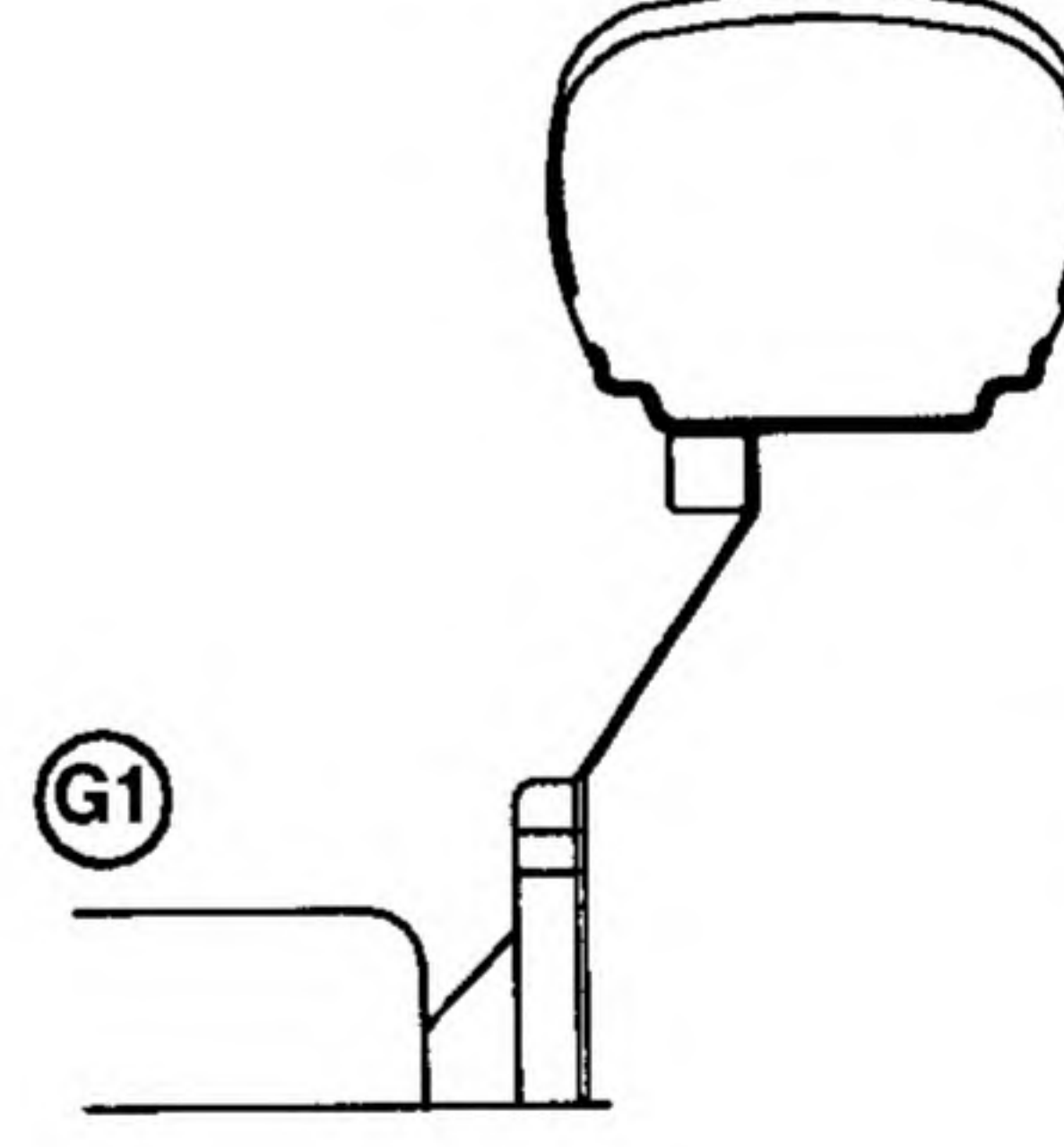
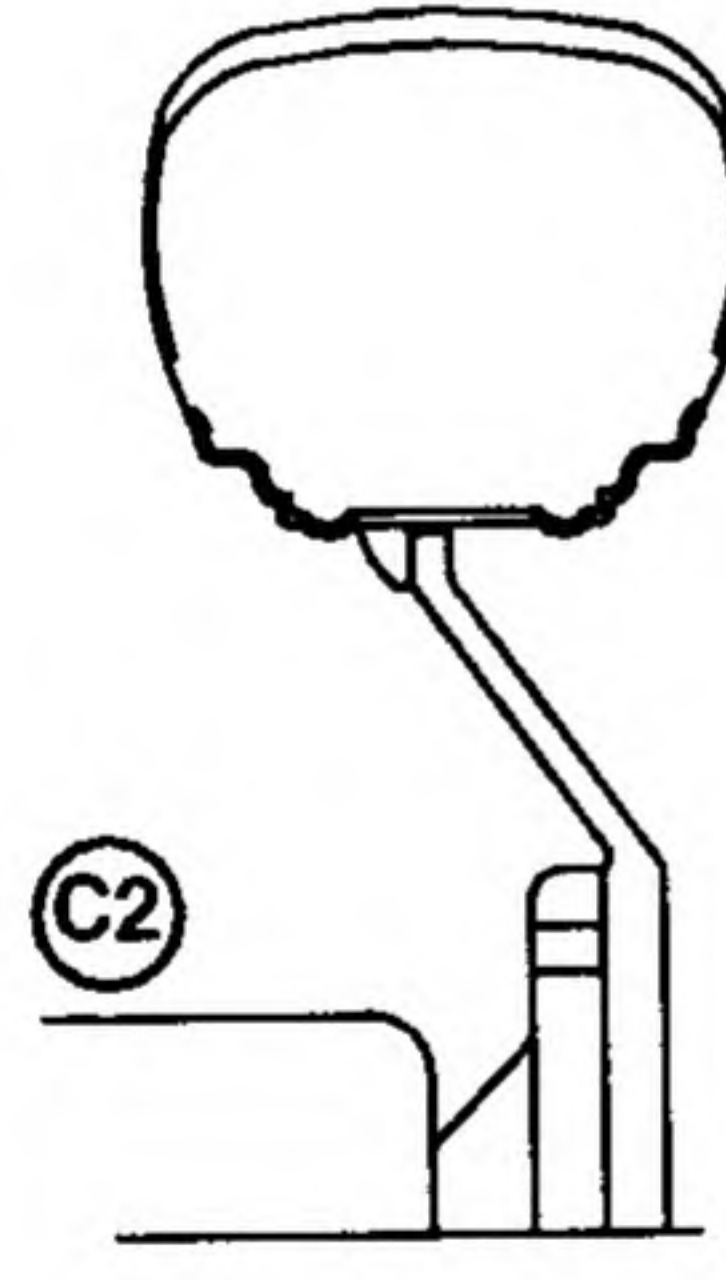
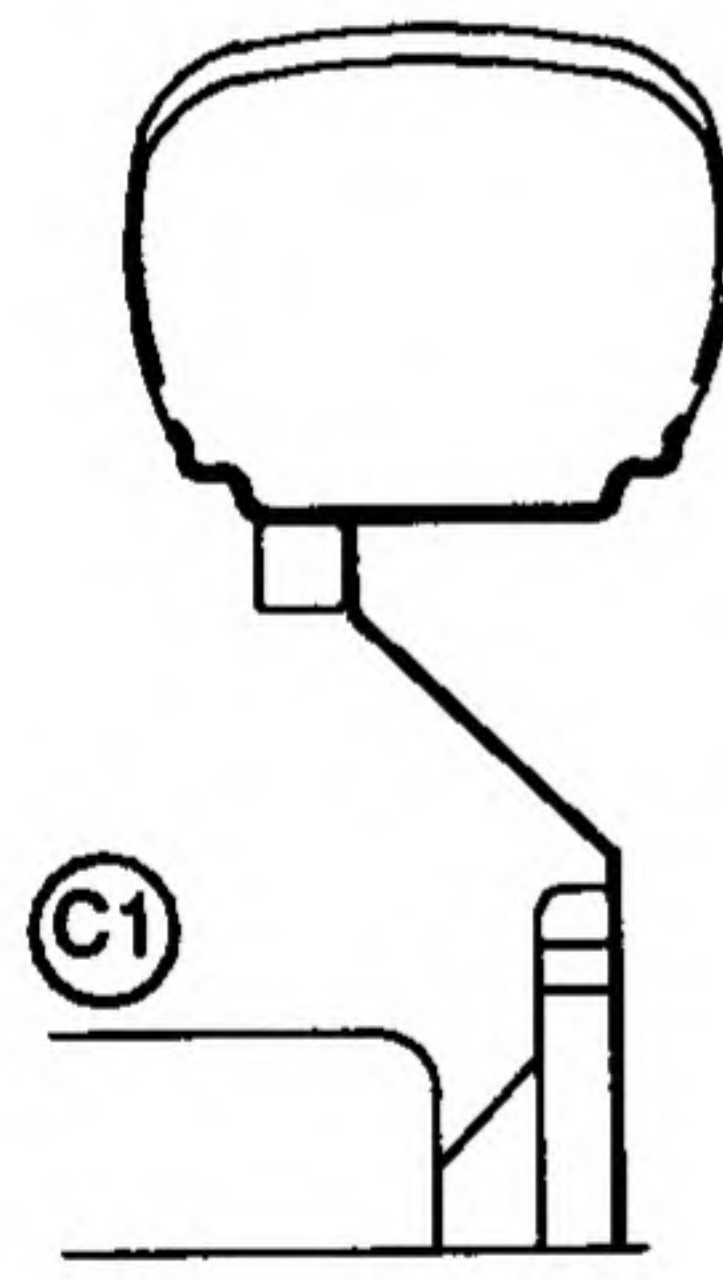
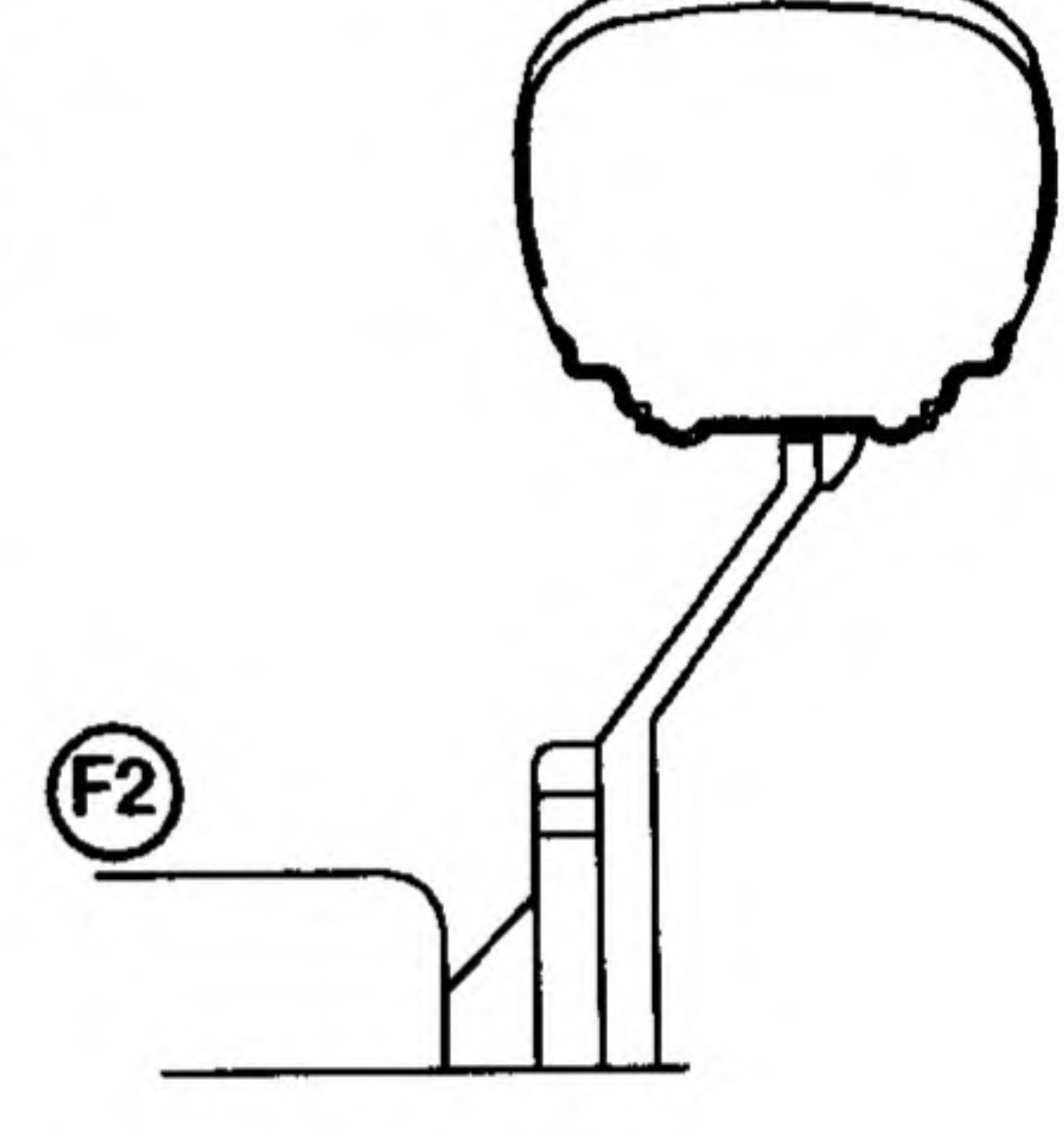
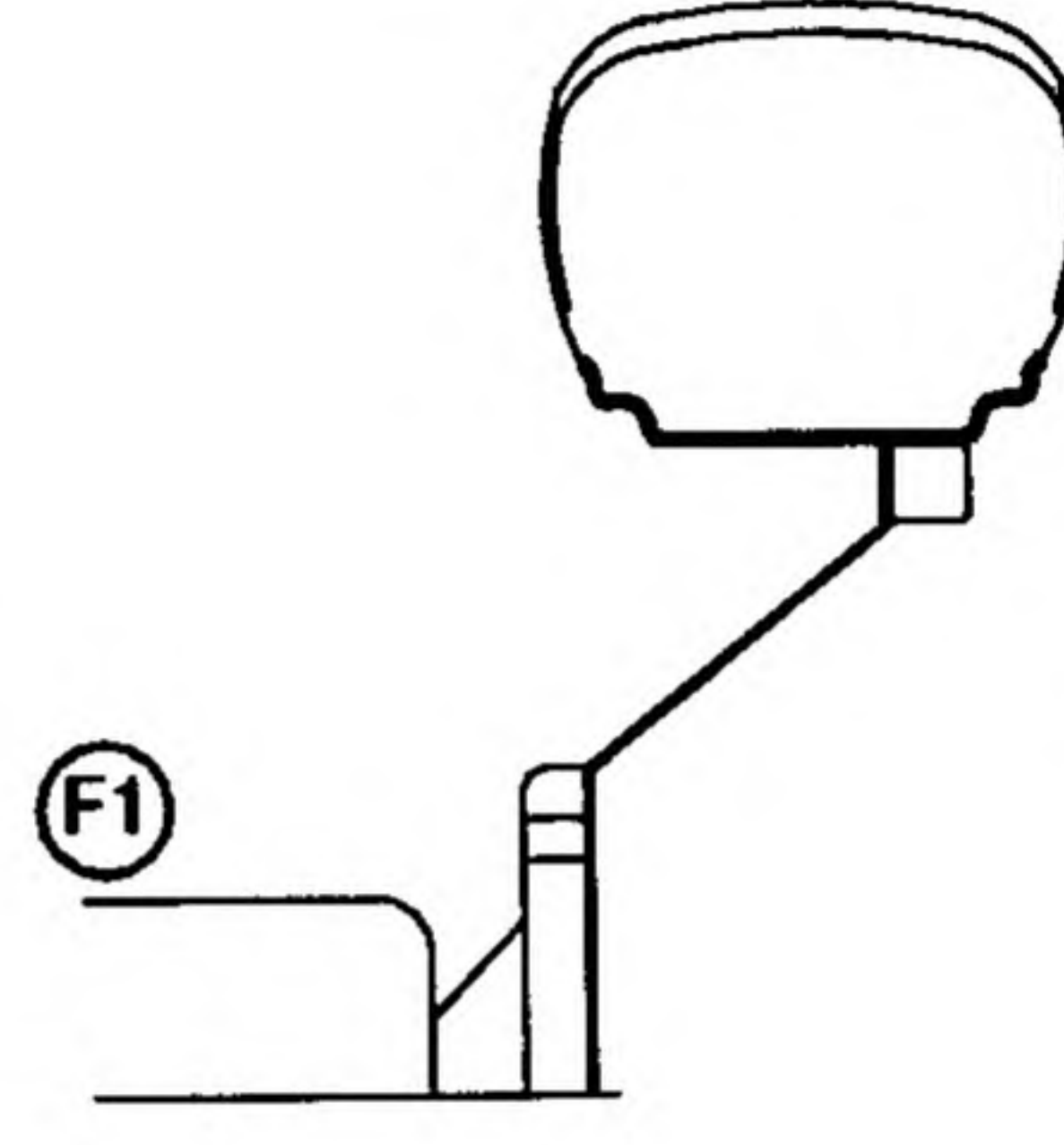
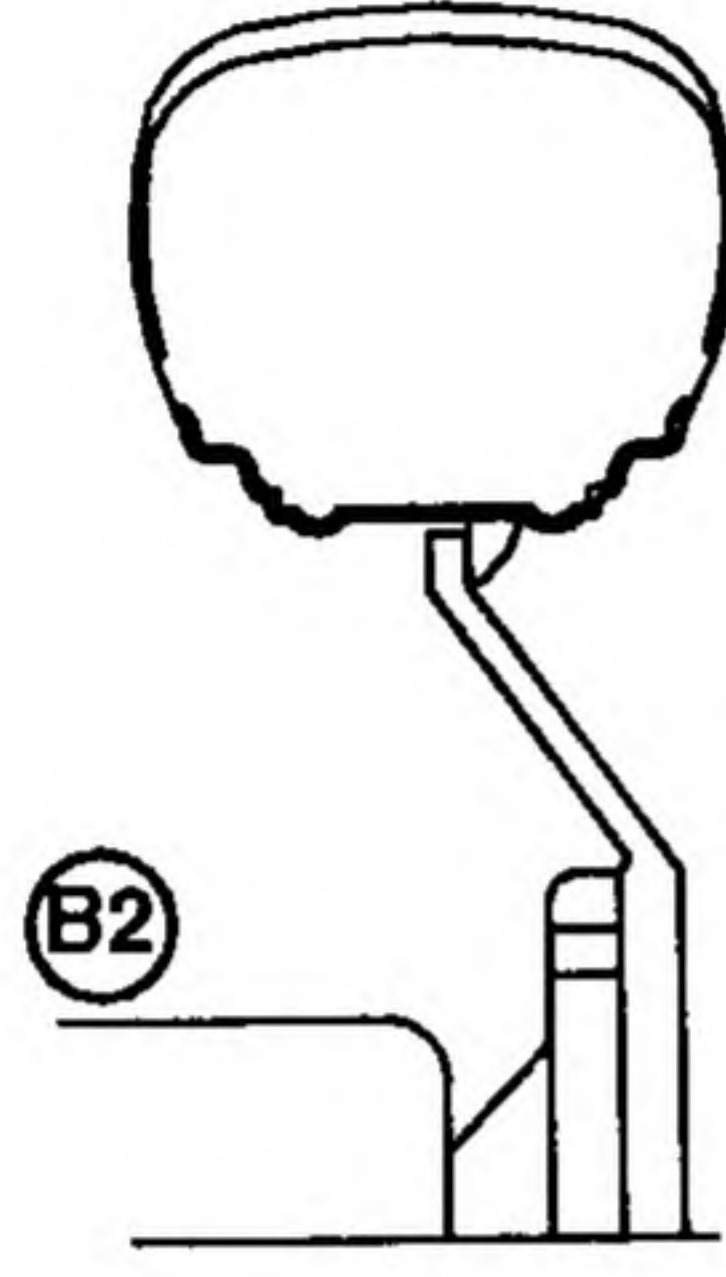
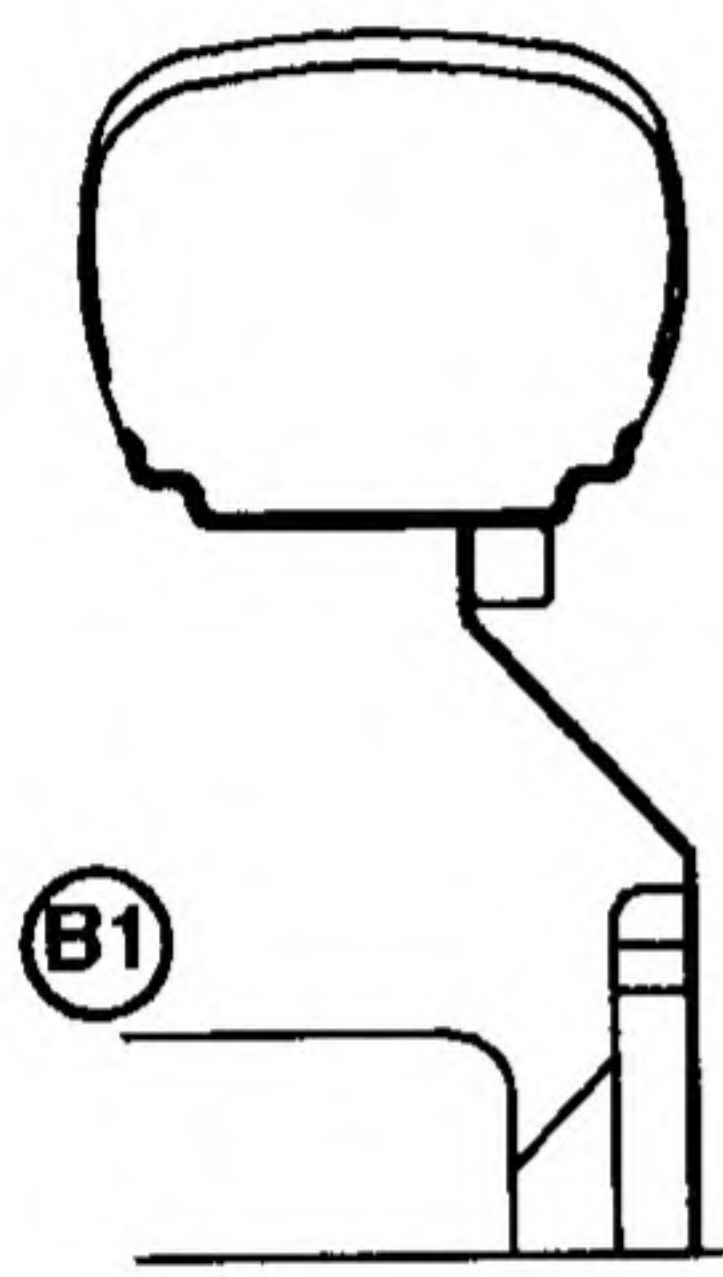
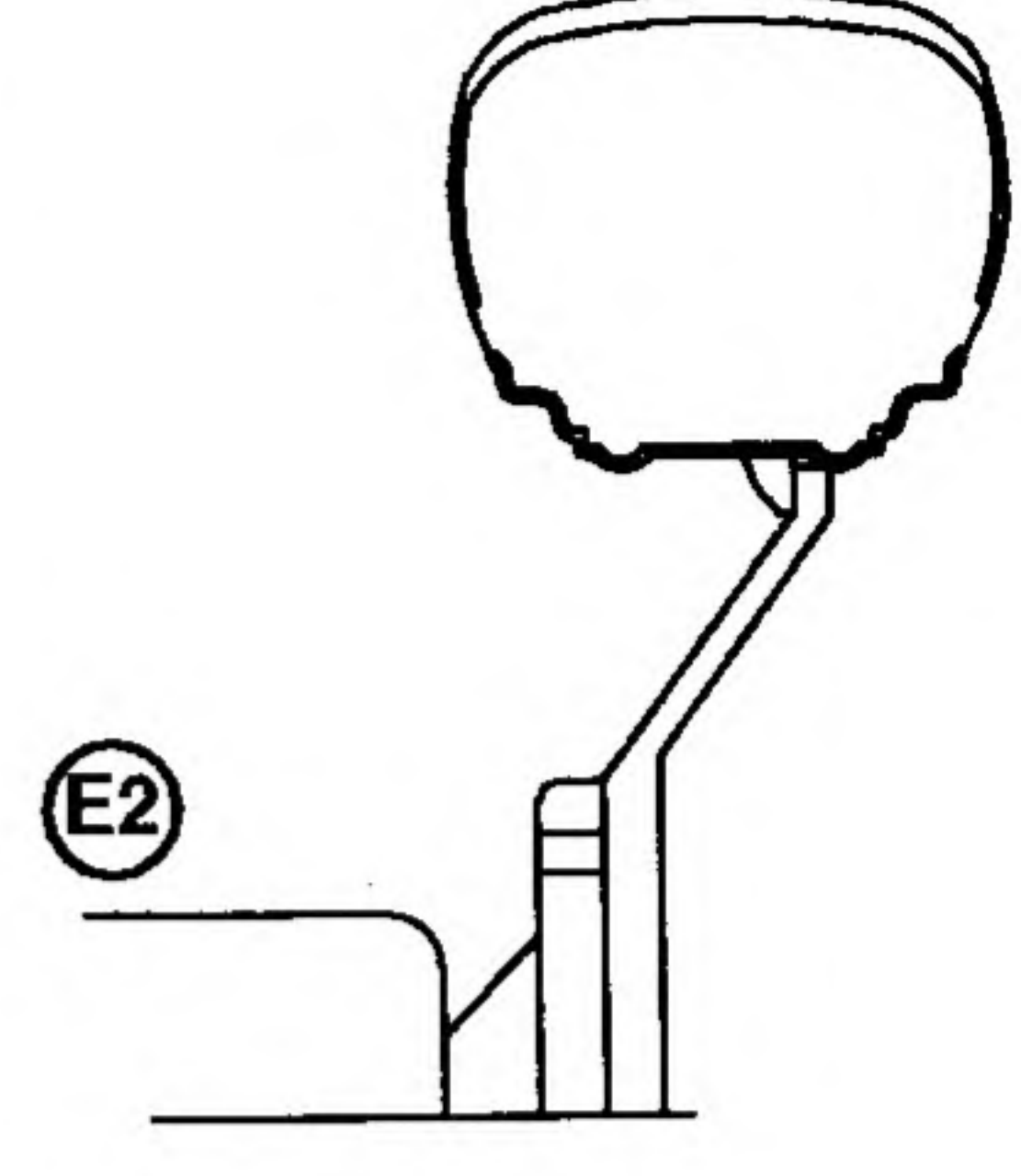
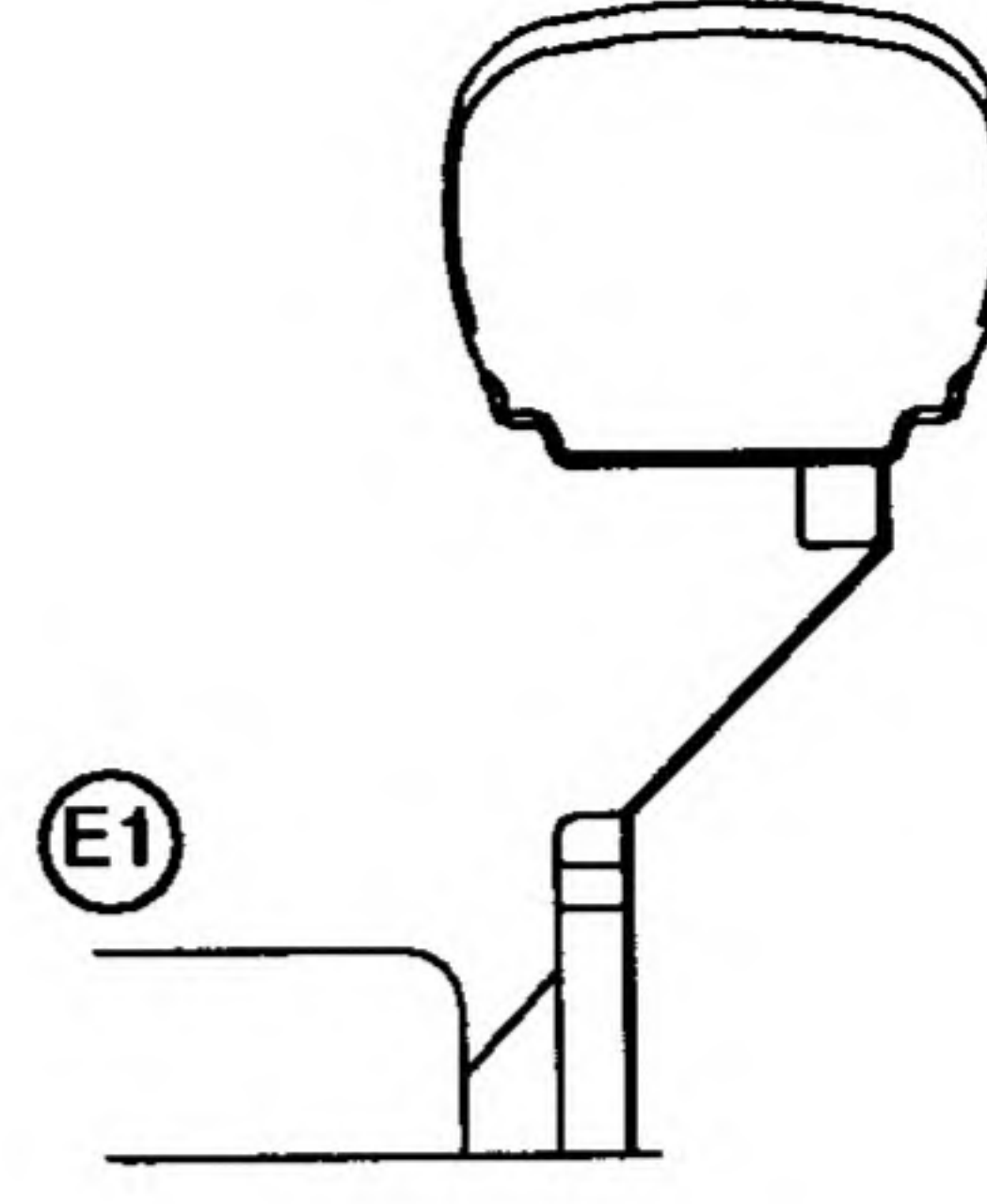
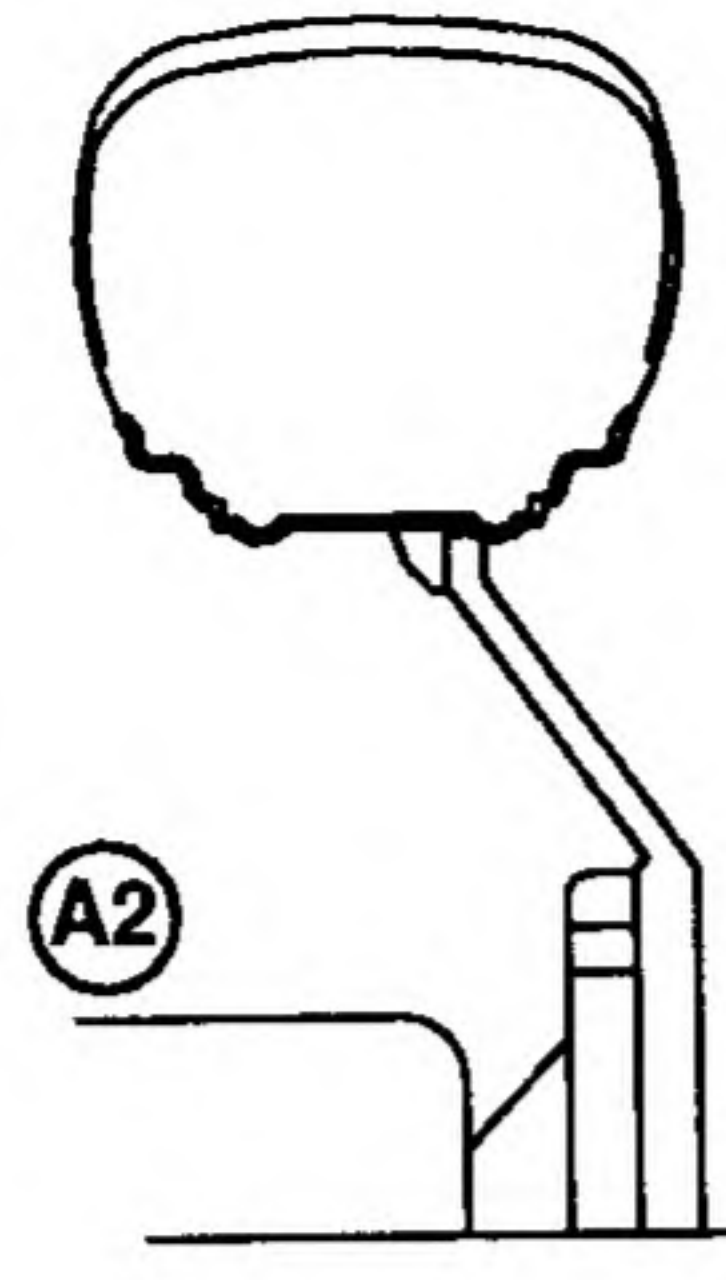
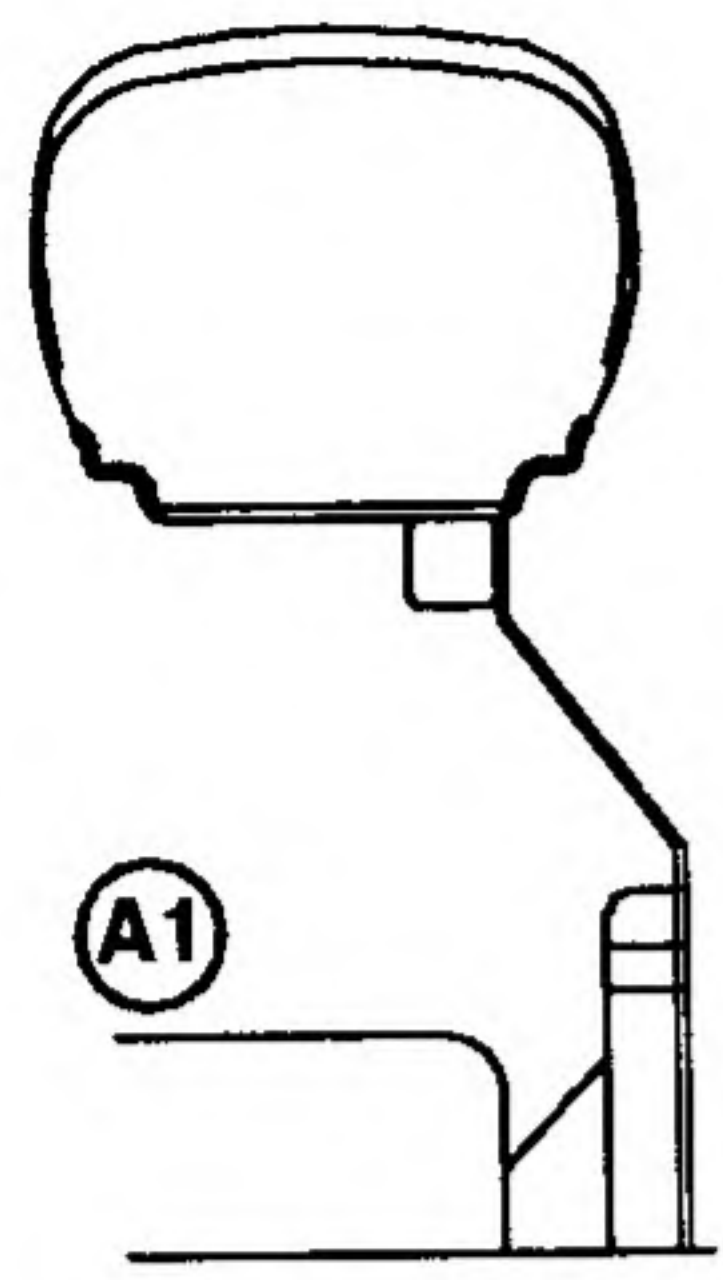
^bRequires 102 mm (4.0 in.) axle spacers.

HI-CROP DISKS REAR TREAD WIDTH Centerline-to-Centerline 9.5R48 Tire Size

Diagram	No Spacer	30 mm Spacer	55 mm Spacer	4 in. Spacer
A1	1097 mm (43.2 in.)	1157 mm (45.5 in.)	1207 mm (47.5 in.)	1300 mm (51.2 in.)
B1	1201 mm (47.3 in.)	1261 mm (49.7 in.)	1311 mm (51.6 in.)	1404 mm (55.3 in.)
C1	1328 mm (52.3 in.)	1388 mm (54.7 in.)	1438 mm (56.6 in.)	1531 mm (60.3 in.)
D1	1433 mm (56.4 in.)	1493 mm (58.8 in.)	1543 mm (60.7 in.)	1636 mm (64.4 in.)
E1	1503 mm (59.2 in.)	1563 mm (61.5 in.)	1613 mm (63.5 in.)	1706 mm (67.2 in.)
F1	1608 mm (63.3 in.)	1668 mm (65.7 in.)	1718 mm (67.6 in.)	1811 mm (71.3 in.)
G1	1735 mm (68.3 in.)	1795 mm (70.7 in.)	1845 mm (72.6 in.)	1938 mm (76.3 in.)
H1	1839 mm (72.4 in.)	1899 mm (74.8 in.)	1949 mm (76.7 in.)	2042 mm (80.4 in.)

Continued on next page

MX,WTIP,FA2A -19-08JUN99-3/4



Tread Settings—Multi-Position MFWD Wheels

Wheel tread on MFWD axle with multi-position wheels can be adjusted by repositioning or exchanging the rims or by reversing the wheel disks.

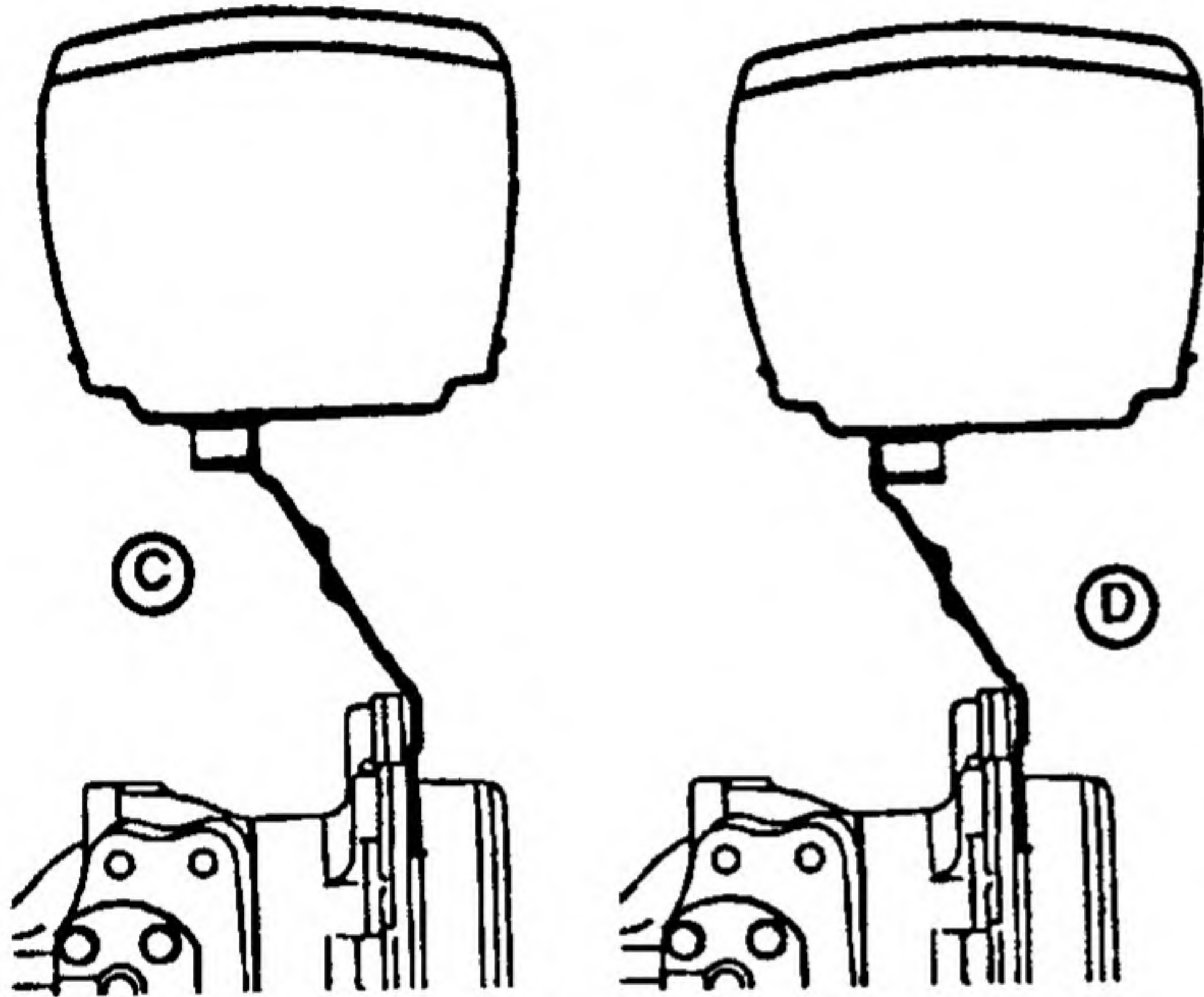
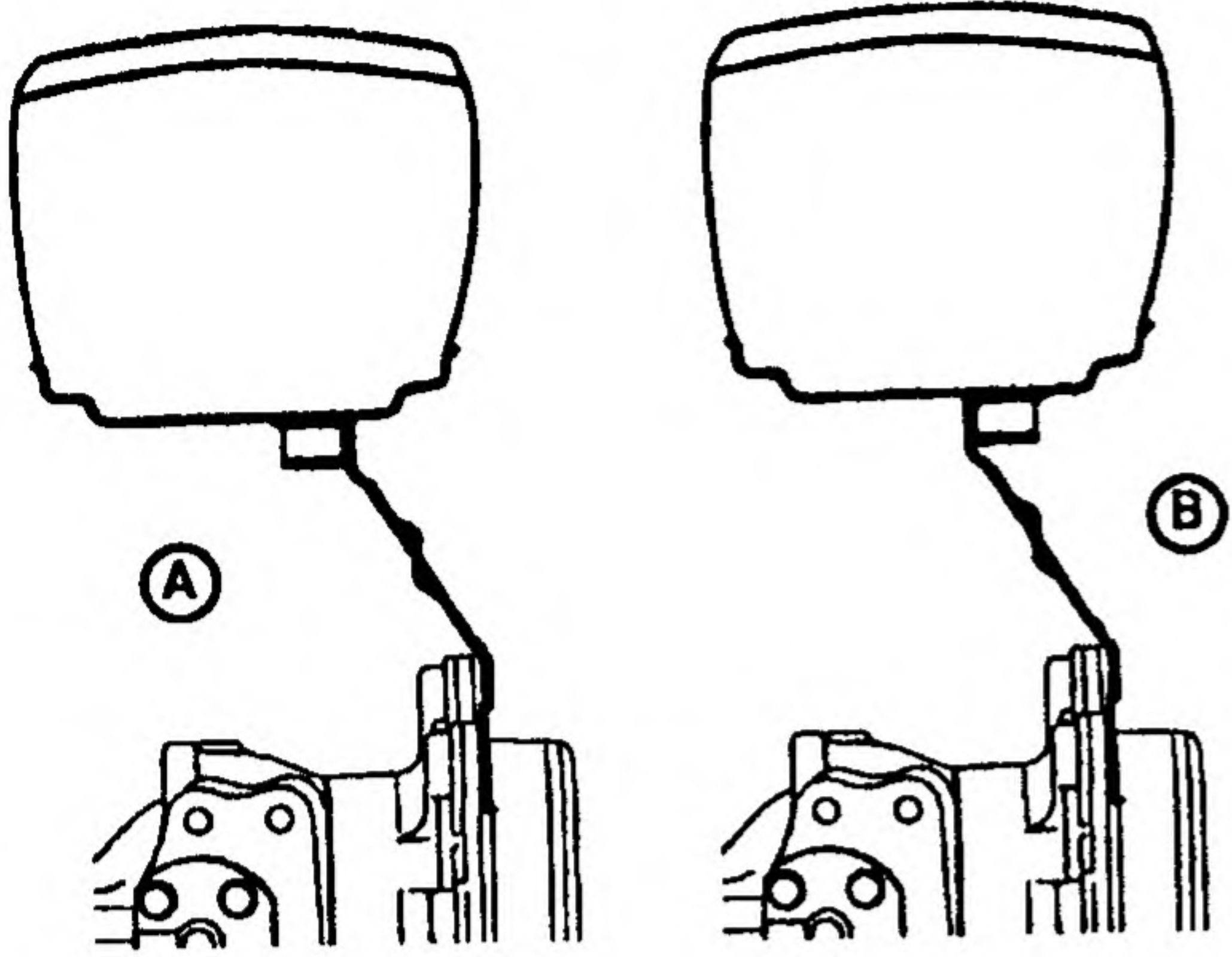
Wheel tread can also be adjusted by exchanging the complete wheel to the opposite side of the tractor. (This maneuver permits the change from disk-dished-in to disk-dished-out operations without disassembling the wheel). When changing MFWD wheels from one side to the other, the arrow on side wall of tire points in the direction of forward rotation. In certain applications, MFWD equipped tractors may operate with the arrows in the opposite direction. See Selecting Front Tire Rolling Direction.

The relationship of the wheel disk and rim in obtaining the different tread settings is shown in the diagrams. A study of these diagrams, before attempting to change tread settings, will save unnecessary labor.

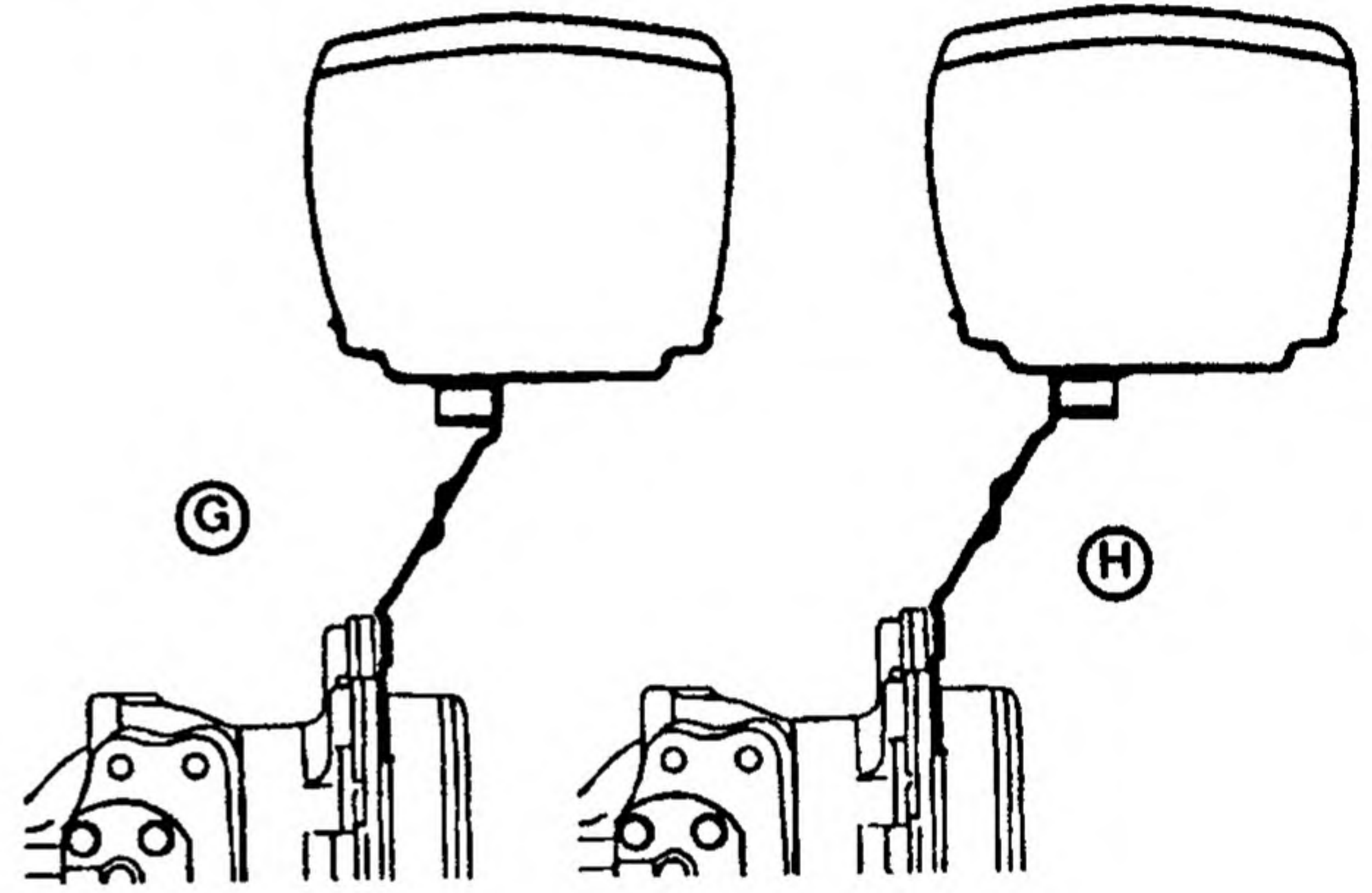
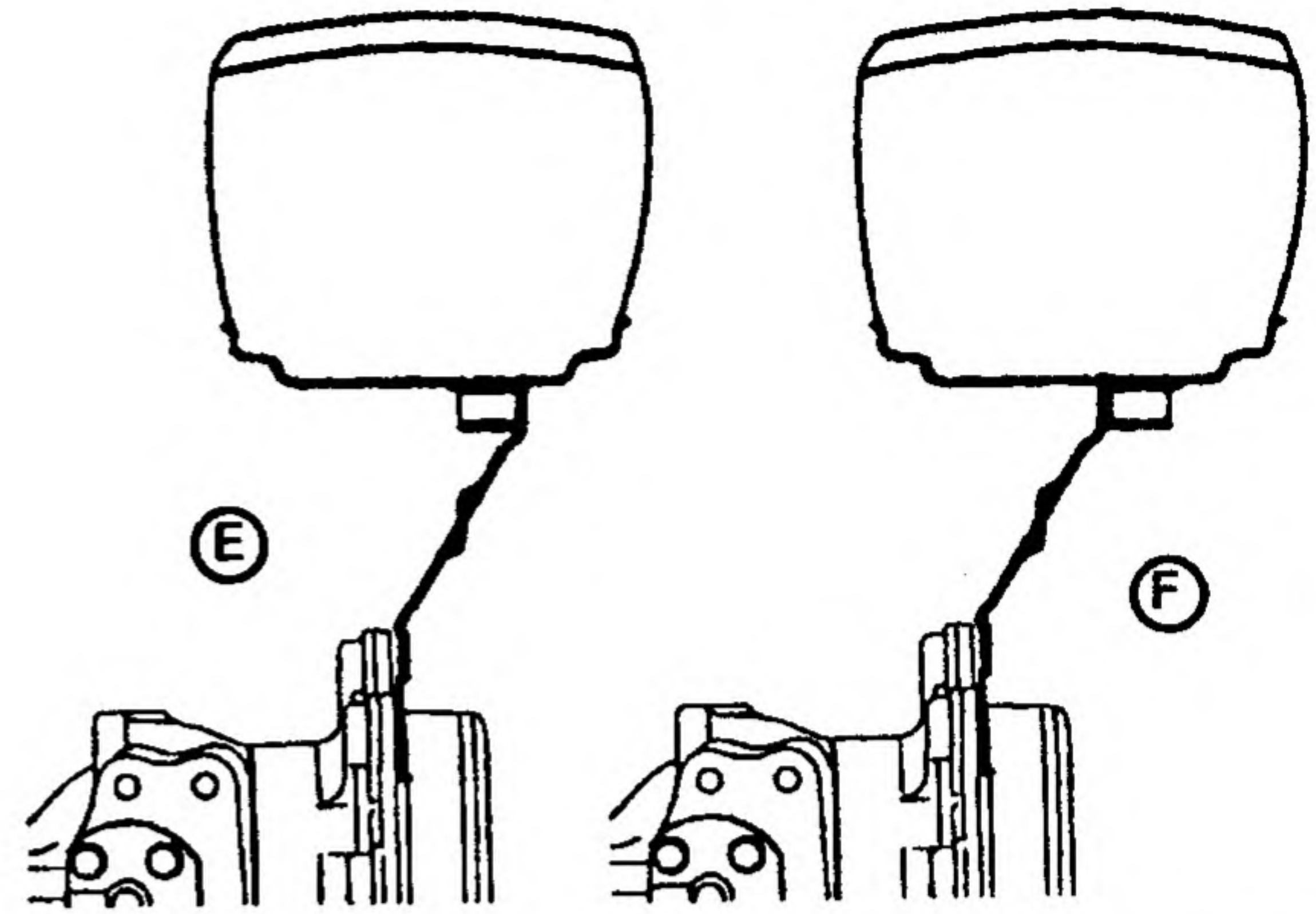
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MX,WTIP,GA4 -19-08JUN99-1/3

Wheels, Tires and Treads



LV601 -UN-22APR94



LV602 -UN-22APR94

Continued on next page

MX,WTIP,GA4 -19-08JUN99-2/3

IMPORTANT: After setting wheel spacing, tighten rim-to-disk bolts and disk-to-hub nuts to specification. Drive tractor 100 m (109 yd) and tighten again.

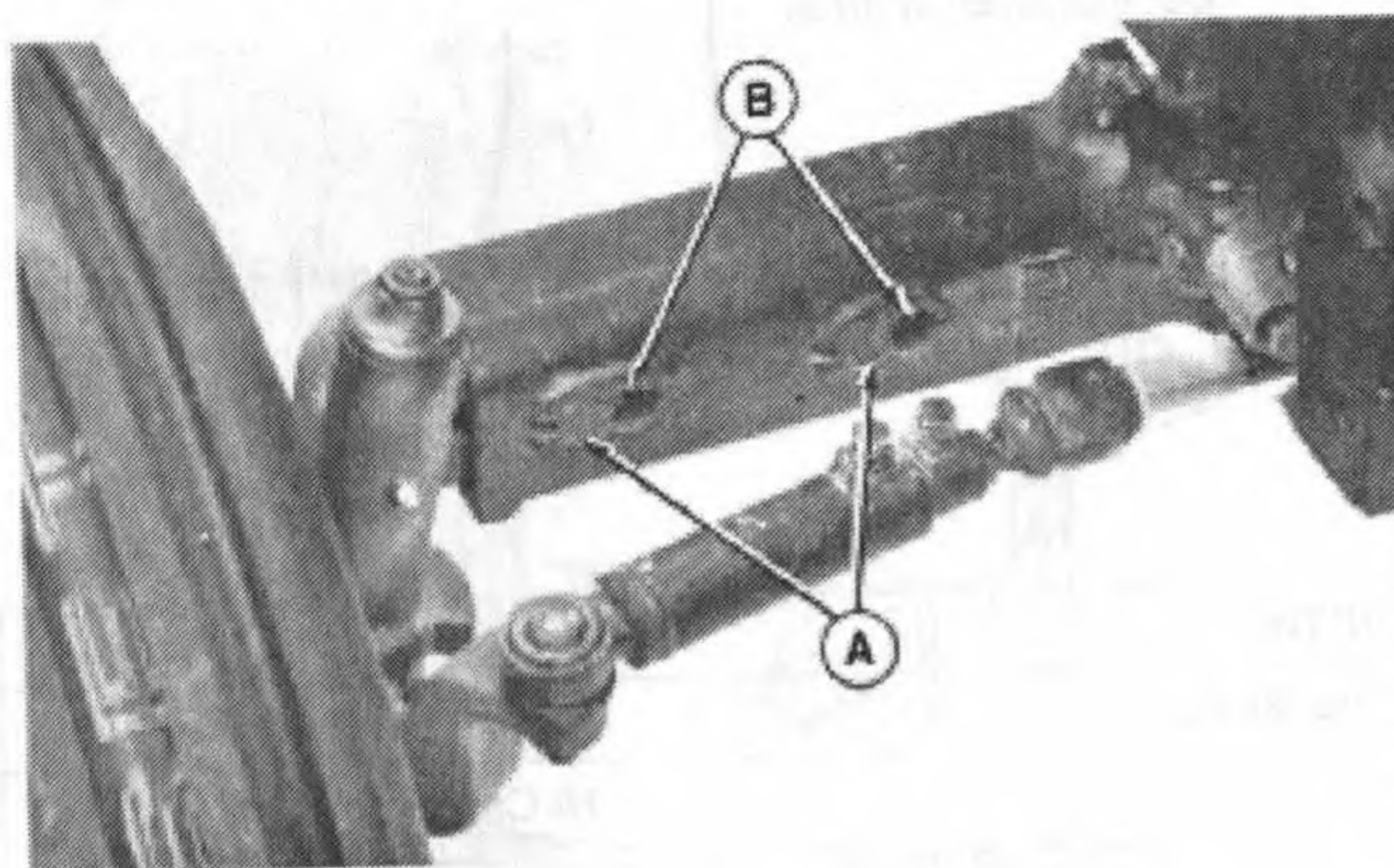
NOTE: Tread settings are measured at bottom centerline of tire.

Specification

Multi-Position MFWD Wheels..... 245 N•m (180 lb-ft)
Rim-to-Disk Bolts Torque
Multi-Position MFWD Wheels..... 300 N•m (220 lb-ft)
Disk-to-Hub Nuts Torque

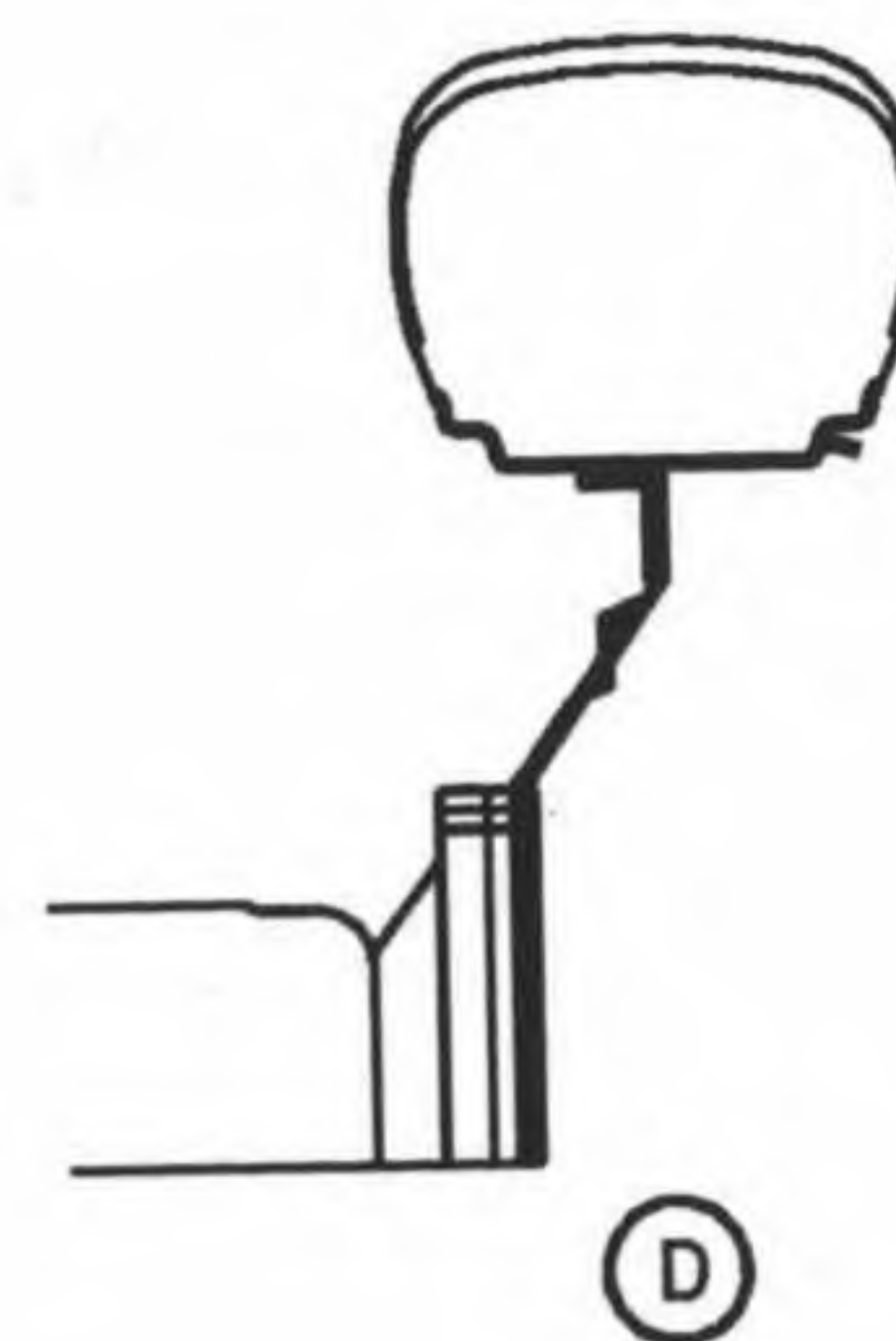
MFWD TREAD WIDTH				
	Tire Sizes			
Diagram	8.3-24, 9.5-24	11.2-24, 12.4-24, 13.6-24	Hi-Crop 9.5R32	Hi-Crop 9.5R32 (with 2 in. Spacer)
A	1317 mm (51.9 in.)	1292 mm (50.9 in.) ^a	1370 mm (53.9 in.)	1472 mm (57.9 in.)
B	1430 mm (56.3 in.)	1405 mm (55.3 in.) ^a	1469 mm (57.8 in.)	1570 mm (61.8 in.)
C	1470 mm (57.9 in.)	1495 mm (58.9 in.) ^b	1424 mm (56.1 in.)	1526 mm (60.1 in.)
D	1583 mm (62.3 in.)	1608 mm (63.3 in.)	1522 mm (59.9 in.)	16242 mm (63.9 in.)
E	1717 mm (67.6 in.)	1691 mm (66.6 in.)	1776 mm (69.9 in.)	1878 mm (73.9 in.)
F	1830 mm (72.0 in.)	1804 mm (71.0 in.)	1875 mm (73.8 in.)	1977 mm (77.8 in.)
G	1869 mm (73.6 in.)	1894 mm (74.6 in.)	1831 mm (72.1 in.)	1932 mm (76.1 in.)
H	1982 mm (78.0 in.)	2007 mm (79.0 in.)	1929 mm (75.9 in.)	2031 mm (79.9 in.)
^a Not recommended.				
^b The 13.6-24 R1 MFWD tire is compatible with 540 loaders in the 1495 mm (58.9 in.) front tread setting only. Steering stops must be set 52 mm (2 in.).				

Tread Settings—Adjustable Front Axle



LV1514 -UN-05MAR96

Front rims are offset. With some tires, this provides two tread spacings, at each axle setting.



LV1515 -UN-05MAR96

Continued on next page

MX,WTIP,IA4 -19-05MAR96-1/2

Wheels, Tires and Treads

TREAD SETTINGS Centerline-to-Centerline								
Tire Size	6.50-16 and 7.50-16				9.5L-15 and 11L-15		27/9.5L-15	
Wheel Position	C	D	C	D	D	D	D	D
Axle Pin Position	A	A	B	B	A	B	A	B
Tread Position ^a								
1	1435 mm (56.5 in.)	1568 mm (61.7 in.)			1546 mm (60.9 in.)		1515 mm (59.5 in.)	
2			1485 mm (58.5 in.)	1618 mm (63.7 in.)		1596 mm (62.8 in.)		1565 mm (61.6 in.)
3	1535 mm (60.4 in.)	1668 mm (65.7 in.)			1646 mm (64.8 in.)		1615 mm (63.6 in.)	
4			1585 mm (62.4 in.)	1717 mm (67.6 in.)		1696 mm (66.8 in.)		1665 mm (65.6 in.)
5	1635 mm (64.4 in.)	1768 mm (69.6 in.)			1746 mm (68.7 in.)		1715 mm (67.5 in.)	
6			1685 mm (66.3 in.)	1818 mm (71.6 in.)		1796 mm (70.7 in.)		1765 mm (69.5 in.)
7	1735 mm (68.3 in.)	1868 mm (73.5 in.)			1846 mm (72.7 in.)		1815 mm (71.5 in.)	
8			1785 mm (70.3 in.)	1918 mm (75.5 in.)		1896 mm (74.6 in.)		1865 mm (73.4 in.)
9	1835 mm (72.2 in.)	1968 mm (77.5 in.)			1946 mm (76.6 in.)		1915 mm (75.4 in.)	
10			1885 mm (74.2 in.)	2018 mm (79.4 in.)		1996 mm (78.6 in.)		1965 mm (77.4 in.)
11	1935 mm (76.2 in.)	2068 mm (81.4 in.)			2046 mm (80.6 in.)		2015 mm (79.3 in.)	

^aNumber 1 position is with axle adjustment at its most inward location. See Adjust Front Axle Tread Width in this section.

MX, WTIP, IA4 -19-05MAR96-2/2

Adjust Front Axle Tread Width

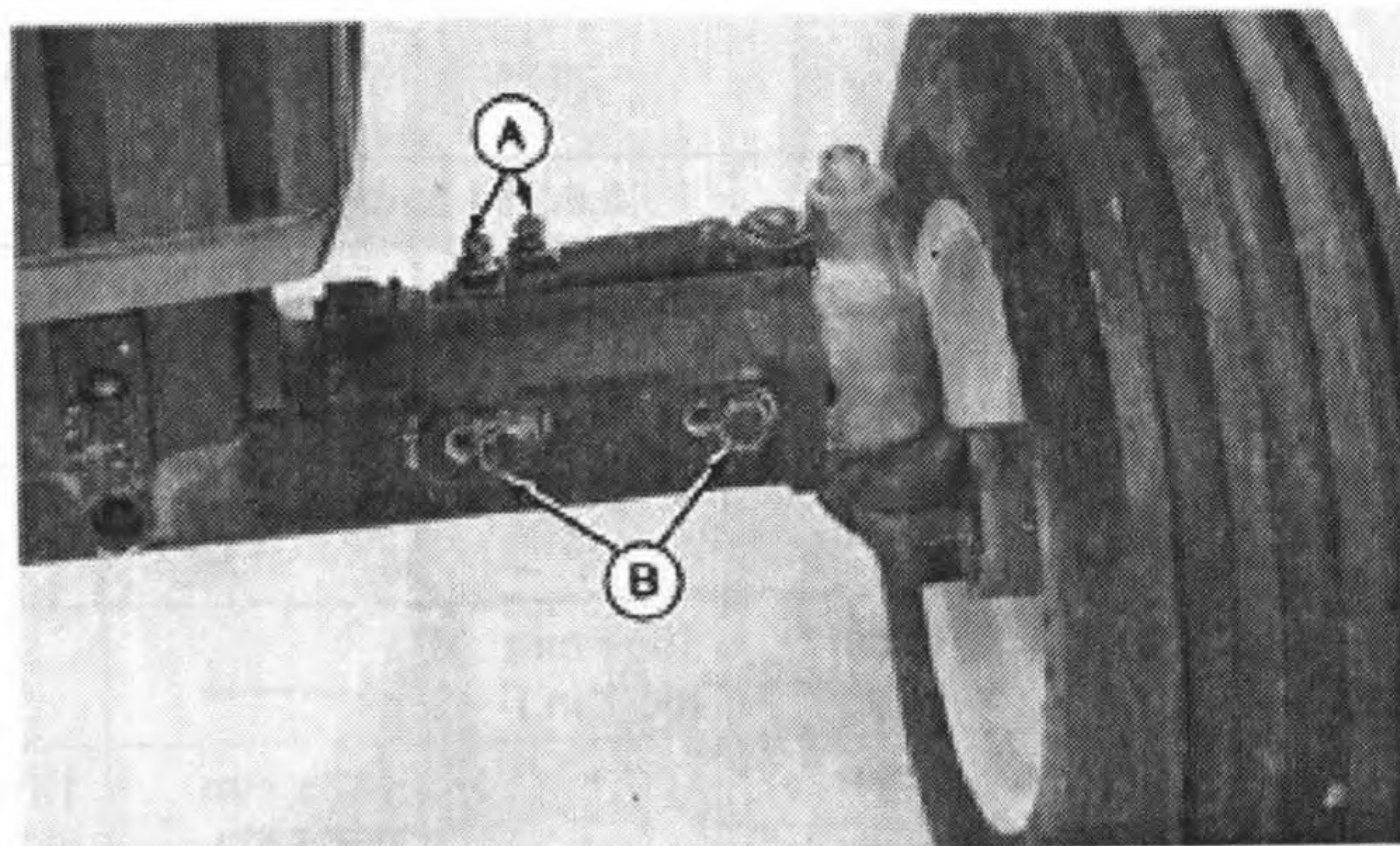
IMPORTANT: DO NOT place jack under engine oil pan.

1. Jack up front end of tractor.
2. When making large tread adjustments it may be necessary to change the tie rod length (A) before or during axle adjustments. See Check and Adjust Toe-In for your axle type.
3. Remove four bolts (B) and tapered pins (C) from front axle (2 on each side).
4. Slide axle knees to desired position. Both sides should be adjusted to same spacing. Pins and bolts may have to be moved to the companion holes (D) in some settings.
5. Reinstall axle bolts (B) and pins (C) on each side. Tighten bolts to specification.

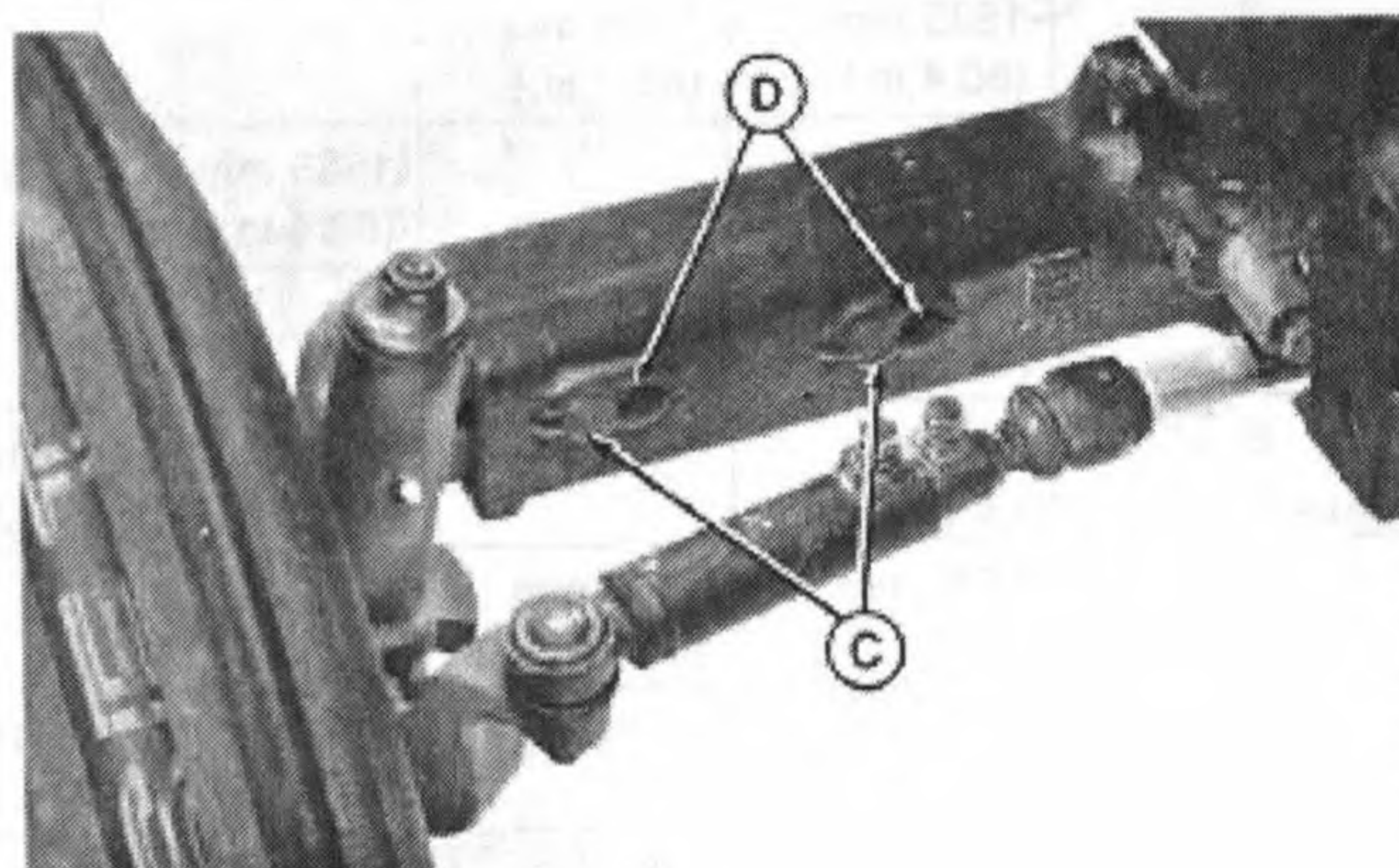
Specification

Front Axle Bolts Torque 480 N•m (350 lb-ft)

6. Set toe-in. See Check and Adjust Toe-In for your axle type.



M46422 -UN-31JAN92



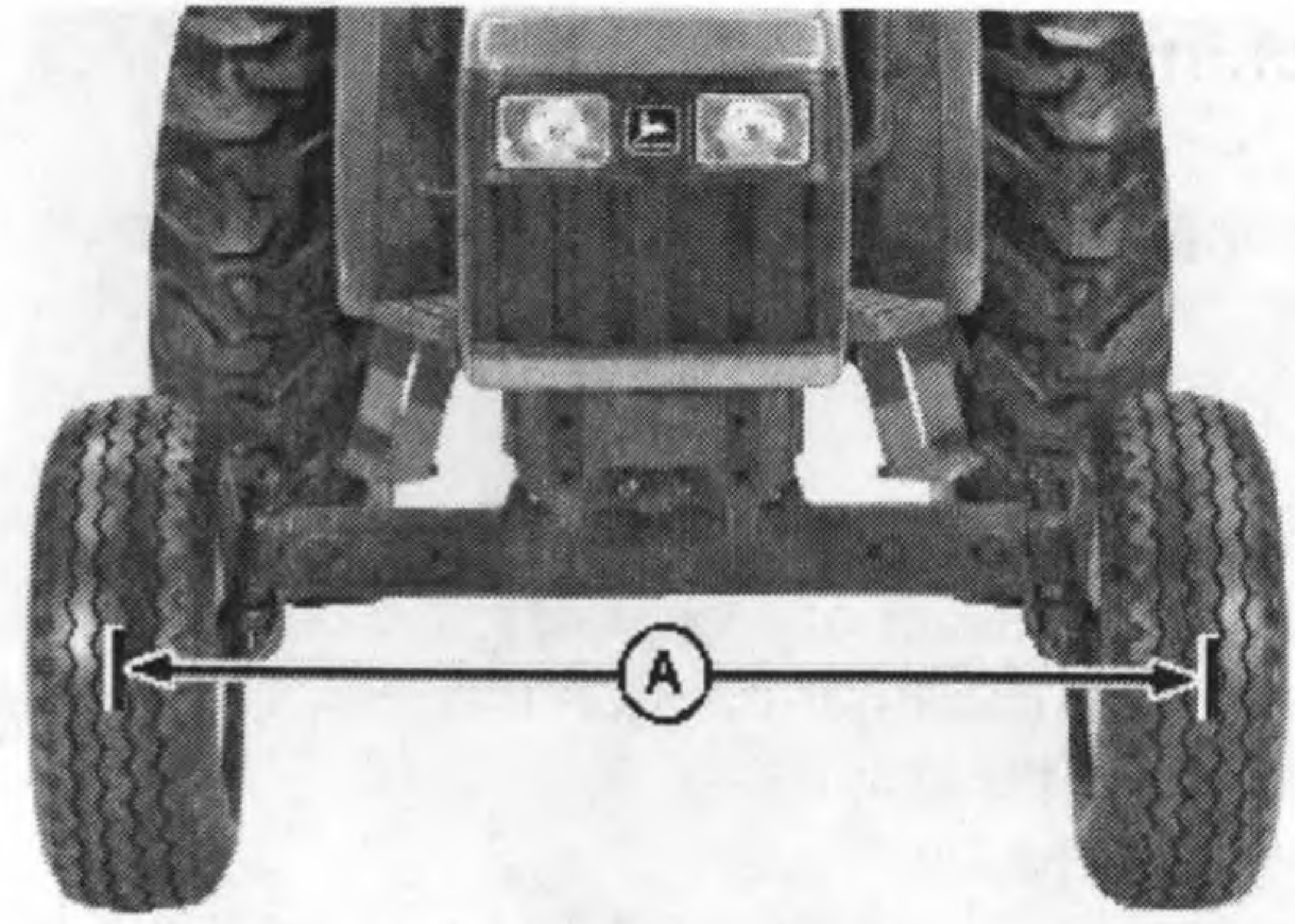
M46423 -UN-31JAN92

- A—Tie Rod
- B—Bolts (4 used)
- C—Tapered Pins (4 used)
- D—Companion Holes

MX,WTIP,JA2 -19-24JUL95-1/1

Checking Toe-In—Two-Wheel Drive Tractor

1. Park machine on level surface.
2. Turn steering wheel so front wheels are in the straight-ahead position. Stop engine.
3. Measure distance (A) between tires at hub level in front of axle. Record measurement and mark the tires.
4. Move tractor back about 1 m (3 ft), so mark is at hub level behind the axle. Again, measure distance between tires at same point on tire. Record measurement.
5. Determine the difference between front and rear measurements. If the front measurement is smaller, toe is "in". If the rear is smaller, toe is "out".
6. Distance (A) at front of tires should be 3—6 mm (1/8—1/4 in.) less than distance measured at rear of tires. Adjust toe-in if necessary. (See procedure in this section.)



A—Front Axle Toe-In Distance

LV1749 -UN-28APR97

LV,5010WT,C -19-09SEP97-1/1

Adjusting Toe-In—Two-Wheel Drive Tractor

1. Loosen lock nuts (A) and back out the bolts (B) on tie rod tubes several turns.
2. Adjust tie rods on both sides of the tractor equally by rotating the inner tube (C) to lengthen or shorten tie rod. Adjust toe-in to 3 to 6 mm (1/8 to 1/4 in.)

Tie Rod Rotation	Approximate Change in Toe-in
1/2 turn	8 mm (5/16 in.)
1 turn	16 mm (5/8 in.)

3. Tighten bolts (B) to specification. Do not overtighten as damage to the tube may occur.

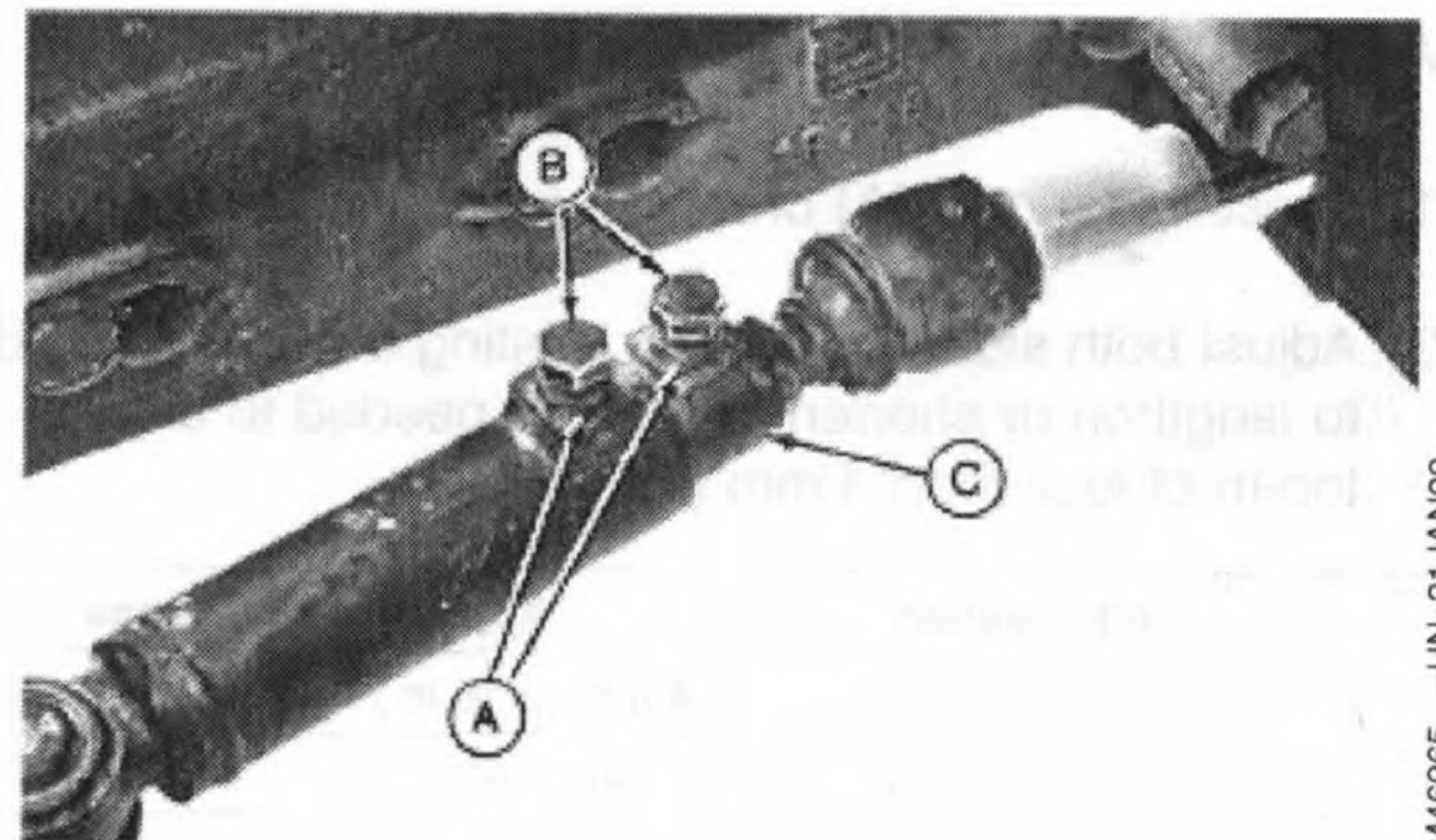
Specification

Tie Rod Bolts Torque 85 N•m (62 lb-ft)

4. Tighten the lock nuts (A) to specification.

Specification

Tie Rod Lock Nuts Torque 90 N•m (66 lb-ft)



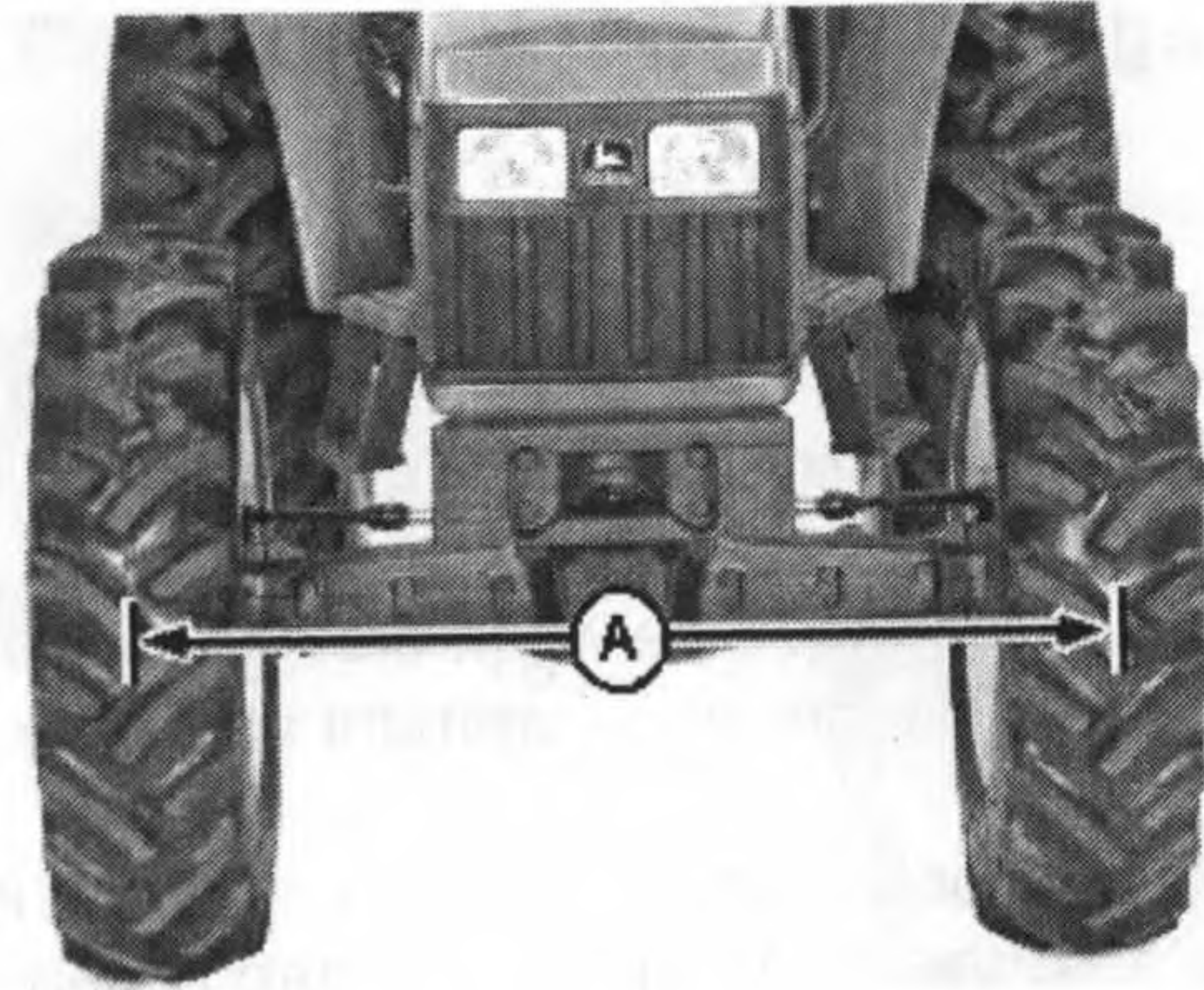
A—Lock Nuts
B—Tie Rod Bolts
C—Inner Tube

M46965 -UN-31JAN92

LV,5010WT,J -19-09SEP97-1/1

Checking Toe-In—MFWD Tractor

1. Disengage MFWD and park tractor on smooth, level surface. Steer front wheels straight ahead. Stop engine.
2. Measure distance (A) between centerline of tires at hub level in front of axle, using an outside bar of each tire or an inside bar of each tire. Record measurement and mark the tires.
3. Move tractor back about 1 m (3 ft), so mark is at hub level behind the axle. Again, measure distance between tires at same point on tire. Record measurement.
4. Determine the difference between front and rear measurements. If the front measurement is smaller, toe is "in". If the rear is smaller, toe is "out". The difference may be in either direction (toe-in or toe-out), but should be less than 3 mm (1/8 in.). Adjust toe-in if necessary. (See procedure in this section.)



A—MFWD Axle Toe-In Distance

LV1750 -UN-28APR97

LV,5010WT,D -19-09SEP97-1/1

Adjusting Toe-In—MFWD Tractor

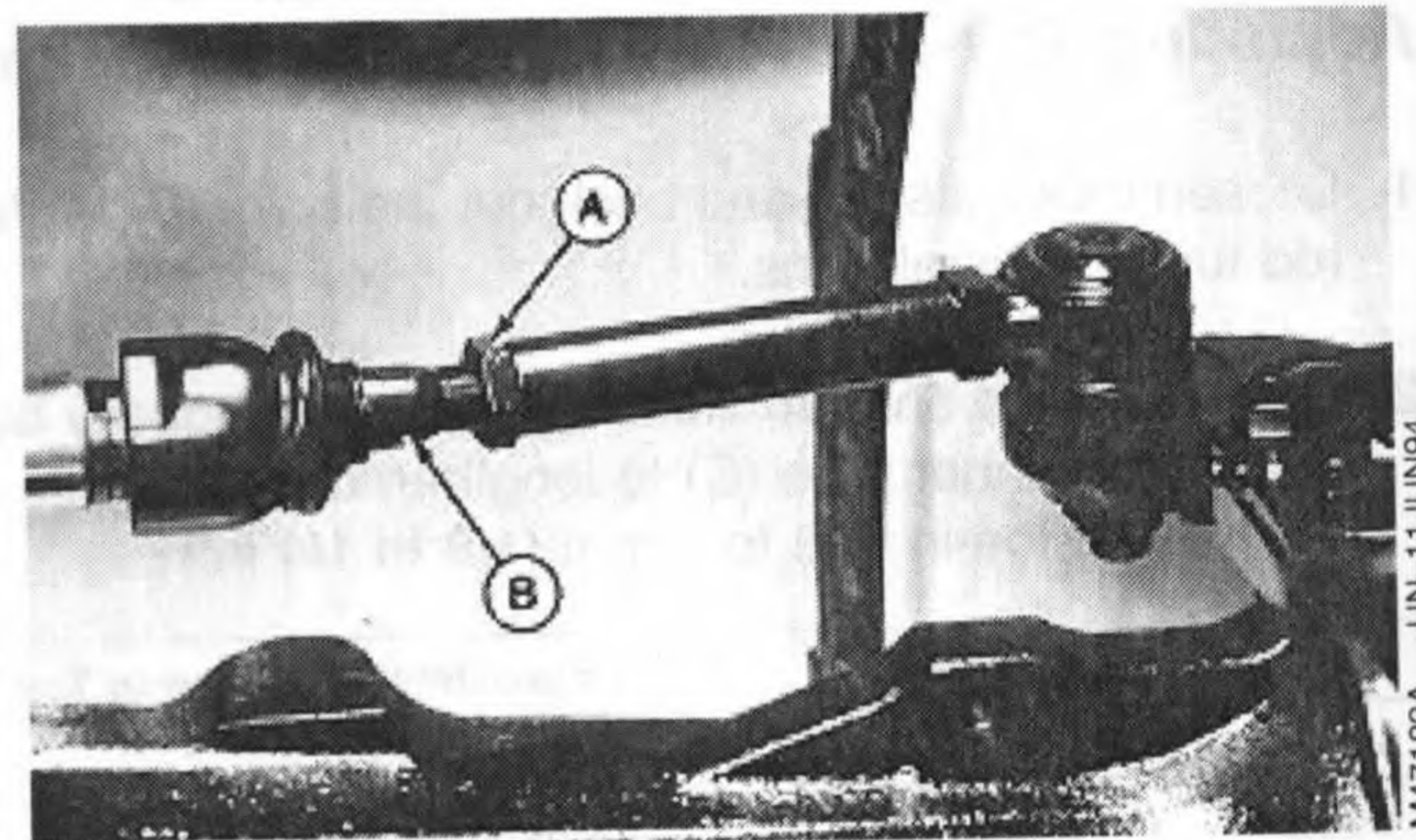
1. Loosen jam nuts (A) on both ends of tie rod.
2. Adjust both sides equally by rotating the inner rod (B) to lengthen or shorten tie rod, as needed to obtain toe-in of less than 3 mm (1/8 in.).

Tie Rod Rotation	Approximate Change
1/8 turn	4 mm (3/16 in.)
1/4 turn	8 mm (3/8 in.)
1/2 turn	16 mm (5/8 in.)

3. Tighten jam nuts to specification.

Specification

MFWD Tie Rod Jam Nuts Torque 120 N•m (88 lb-ft)



A—Tie Rod Jam Nuts
B—Inner Rod

M47182A -UN-11JUN94

LV,5010WT,K -19-09SEP97-1/1

Set MFWD Steering Stops Turning Radius

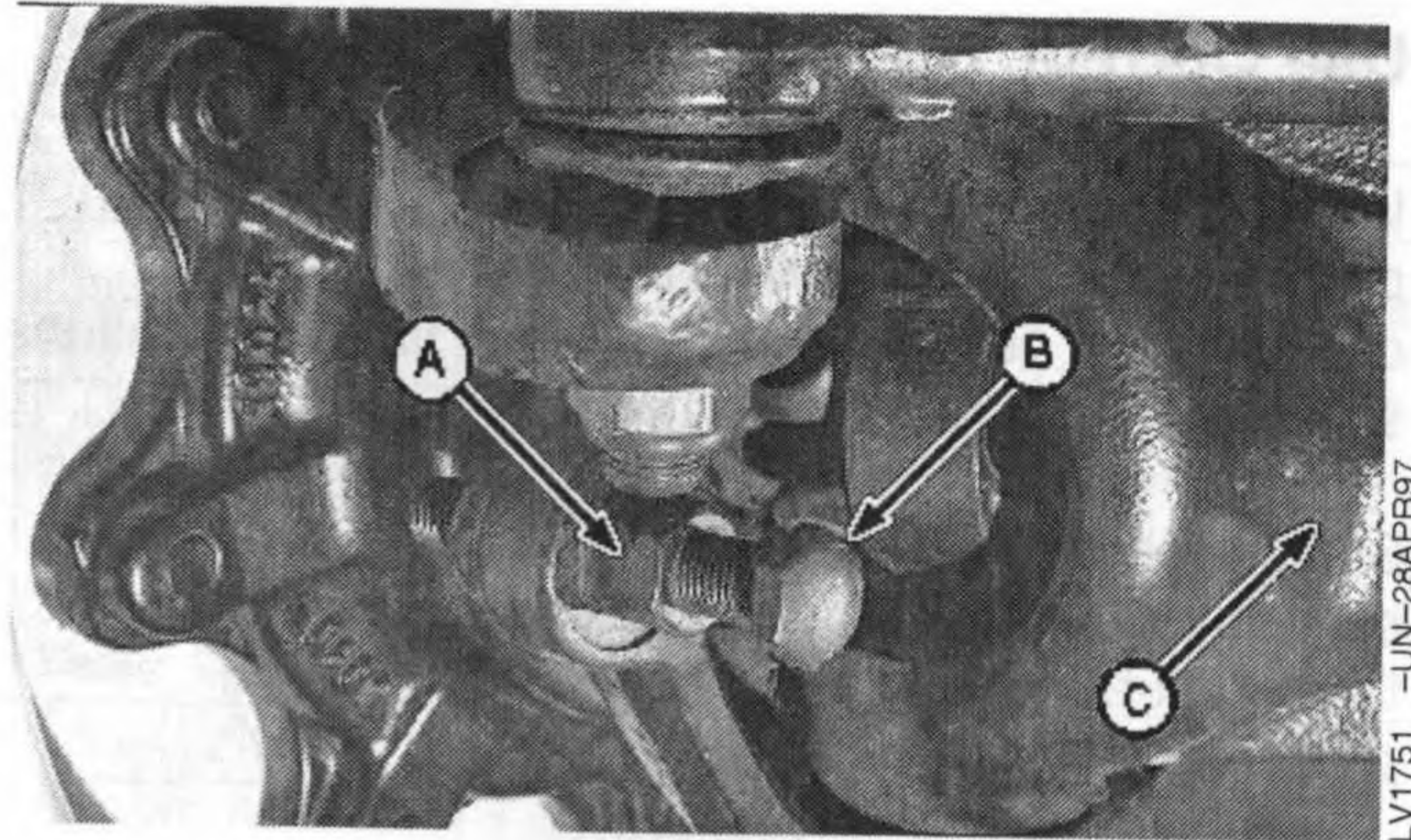
1. Raise and support the front of the tractor so the MFWD axle can be oscillated to its stops.
2. Slowly turn the steering wheel to the left until the steering cylinder travel has reached its limit, the steering stops, or the tires are within 25 mm (1 in.) of the grille screen or the side panels.
3. Raise the left side of the axle against its stop and measure the clearance between the tire and the nearest tractor component. The distance should not be less than 25 mm (1 in.).
4. Loosen the locking nut (A) on the steering stop and adjust the steering stop bolt (B) so it touches the steering stop (C). It may be necessary to shorten the stop bolt (B) in order to obtain the maximum turning angle.
5. Tighten steering stop bolt retaining lock nut (A) to 125 N•m (92 lb-ft).
6. Turn wheel fully to the left. Impact knuckle housing to steering stop five times.
7. Tighten steering stop bolt retaining nuts again to specification.

Specification

Steering Stop Bolt Retaining Lock 125 N•m (92 lb-ft)
Nut Torque

8. Repeat above steps for the right side.

NOTE: Wide tread settings and large tire sizes will increase turn radius slightly.



A—Steering Stop Locking Nut
B—Steering Stop Bolt
C—Steering Stop

Use Correct Tire Combinations

In order to achieve maximum drawbar pull, maintain proper steerability, reduce tire wear and fuel consumption, comply with the correct tire combinations shown on Tire Compatibility Chart.

Should mechanical front wheel drive front tires show excessive wear in comparison with rear tire, the front tires must be replaced in order to maintain the predetermined tire ratio.

IMPORTANT: When replacing tires, consult your tire dealer. Mixing worn and new

tires, bias and radial or tires of different diameters or loaded radii can reduce tire life and overall tractor performance.

Using any tire combination, other than those listed on the Tire Compatibility Chart, could result in premature tire and driveline wear due to excessive underspeed or overspeed.

MX,WTIP,OA1A -19-24JUL95-1/1

Tire Compatibility Chart—5210 and 5310

			Model	
		Tire Size	5210	5310
Rear		21.5L-16.1 6PR R3	X	X
	2-WD	27/9.5-15 6PR I1	X	X
	MFWD	9.5-16 6PR R3	X	X
Rear		18.4-16.1 6PR R1	X	X
	2-WD	27/9.5-15 6PR I1	X	X
	MFWD	9.5-16 4PR R1	X	X
Rear		16.9-24 8PR R4	X	X
	2-WD	11L-15 8PR F3	X	X
		6.50-16 6PR F2	X	X
	MFWD	10.5/80-18 10PR R4 (I3)	X	X
		12.5/80-18 10PR I3	X	X
Rear		14.9-24 8PR R4	X	X
	2-WD	11L-15 8PR F3	X	X
		6.50-16 6PR F2	X	X
	MFWD	10.5/80-18 10PR R4 (I3)	X	X
		12.5/80-18 10PR I3	X	X
Rear		16.9-24 6PR R1	X	X
		7.50-16 6P F2	X	X
		11L-15 8PR F2	X	X
	MFWD	8.3-24 4PR R1	X	X
Rear		16.9-24 6PR R3	X	X
	2-WD	27/9.5-15 6PR I1	X	X
		11L-15 8PR F3	X	X
	MFWD	8.3-24 4PR R3	X	X
Rear		19.5L-24 10PR R4	X	X
	2-WD	6.5-16 6PR F2	X	X
		11L-15 8PR F3	X	X
	MFWD	10.5/80-18 10PR R4 (I3)	X	X
		12.5/80-18 10PR (I3)	X	X

			Model	
		Tire Size	5210	5310
Rear		13.6-28 4PR R1	X	X
	2-WD	6.50-16 6PR F2	X	X
		7.50-16 6PR F2	X	X
	MFWD	8.3-24 4PR R1	X	X
Rear		14.9-28 6PR R1	X	X
	2-WD	6.50-16 6PR F2	X	X
		7.50-16 6PR F2	X	X
		9.5L-15 6PR F2	X	X
	MFWD	9.5-24 6PR R1	X	X
Rear		16.9-28 6PR R1	X	X
	2-WD	6.50-16 6PR F2	X	X
		9.5L-15 6PR F2	X	X
		7.50-16 6PR F2	X	X
		11L-15 8PR F2	X	X
	MFWD	9.5-24 6PR R1	X	X
Rear		16.9-30 6PR R1		X
	2-WD	9.5L-15 6PR F2		X
		7.50-16 6PR F2		X
	MFWD	11.2-24 6PR R1		X
Rear		21.5L-16.1 6PR R3	X	X
	2-WD	27/9.5-15 6PR I1	X	X
	MFWD	9.5-16 6PR R3	X	X
Rear		22.5LL-16.1 6PR R3 Turf Special	X	X
	2-WD	27/9.5-15 6PR I1	X	X
		27/12LL-15 6PR Turf Special	X	X

LV.5010WT,F -19-04JUN99-1/2

			Model	
		Tire Size	5210	5310
		25/10LL-15 6PR "Smoothie"	X	X
	MFWD	12LL-16 4PR Turf Special	X	X

LV.5010WT,F -19-04JUN99-2/2

Tire Compatibility Chart—5410 and 5510

NOTE: Rear wheels have cast disks.

			Model	
		Tire Size	5410	5510
Rear		21.5L-16.1 6PR R3	X	
	2-WD	27/9.5-15 6PR I1	X	
	MFWD	9.5-16 6PR R3	X	
Rear		18.4-16.1 6PR R1	X	
	2-WD	27/9.5-15 6PR I1	X	
	MFWD	9.5-16 4PR R1	X	
Rear		16.9-24 8PR R4	X	
	2-WD	11L-15 8PR F3	X	
		6.50-16 6PR F2	X	
	MFWD	12.5/80-18 10PR I3	X	
Rear		14.9-24 8PR R4	X	
	2-WD	11L-15 8PR F3	X	
		6.50-16 6PR F2	X	
	MFWD	12.5/80-18 10PR I3	X	
Rear		16.9-24 6PR R1	X	
		7.50-16 6P F2	X	
		11L-15 8PR F2	X	
	MFWD	8.3-24 4PR R1	X	
Rear		16.9-24 6PR R3	X	
	2-WD	27/9.5-15 6PR I1	X	
		11L-15 8PR F3	X	
	MFWD	8.3-24 4PR R3	X	
Rear		19.5L-24 10PR R4	X	
	2-WD	6.0-16 6PR F2	X	
		11L-15 8PR F3	X	
	MFWD	10.5/80-18 10PR R4 (I3)	X	
		12.5/80-18 10PR (I3)	X	

			Model	
		Tire Size	5410	5510
Rear		13.6-28 4PR R1	X	
	2-WD	6.50-16 6PR F2	X	
		7.50-16 6PR F2	X	
	MFWD	8.3-24 4PR R1	X	
Rear		14.9-28 6PR R1	X	
	2-WD	6.50-16 6PR F2	X	
		7.50-16 6PR F2	X	
		9.5L-15 6PR F2	X	
	MFWD	9.5-24 6PR R1	X	
Rear		16.9-28 6PR R1	X	
	2-WD	6.50-16 6PR F2	X	
		9.5L-15 6PR F2	X	
		11L-15 8PR F2	X	
		7.50-16 6PR F2	X	
	MFWD	9.5-24 6PR R1	X	
Rear		16.9-30 6PR R1	X	
	2-WD	9.5L-15 6PR F2	X	
		11L-15 8PR F2	X	
		7.50-16 6PR F2	X	
	MFWD	11.2-24 6PR R1	X	
Rear		21.5L-16.1 6PR R3	X	
	2-WD	27/9.5-15 6PR I1	X	
	MFWD	9.5-16 6PR R3	X	
Rear		22.5LL-16.1 6PR Turf Special	X	
	2-WD	27/9.5-15 6PR I1	X	
		25/10LL-15 6PR "Smoothie"	X	

Continued on next page

LV,5010WT,G -19-04JUN99-1/2

Wheels, Tires and Treads

			Model	
		Tire Size	5410	5510
		27/12LL-15 6PR Turf Special	X	
	MFWD	12LL-16 PR Turf Special	X	
Rear		18.4-30 6PR R1		X
	2-WD	11L-15 8PR F2		X
		7.50-16 6PR F2		X
	MFWD	12.4-24 6PR R1		X
Rear		16.9-30 6PR R1		X
	2-WD	9.5L-15 6PR F2		X
		11L-15 8PR F2		X
		7.50-16 6PR F2		X
	MFWD	11.2-24 6PR R1		X
Rear		15.5-38 6PR R1		X ^a
	2-WD	11L-15 8PR F2		X
		7.50-16 6PR F2		X
	MFWD	13.6-24 6PR R1		X
^a Not available in cab machines.				

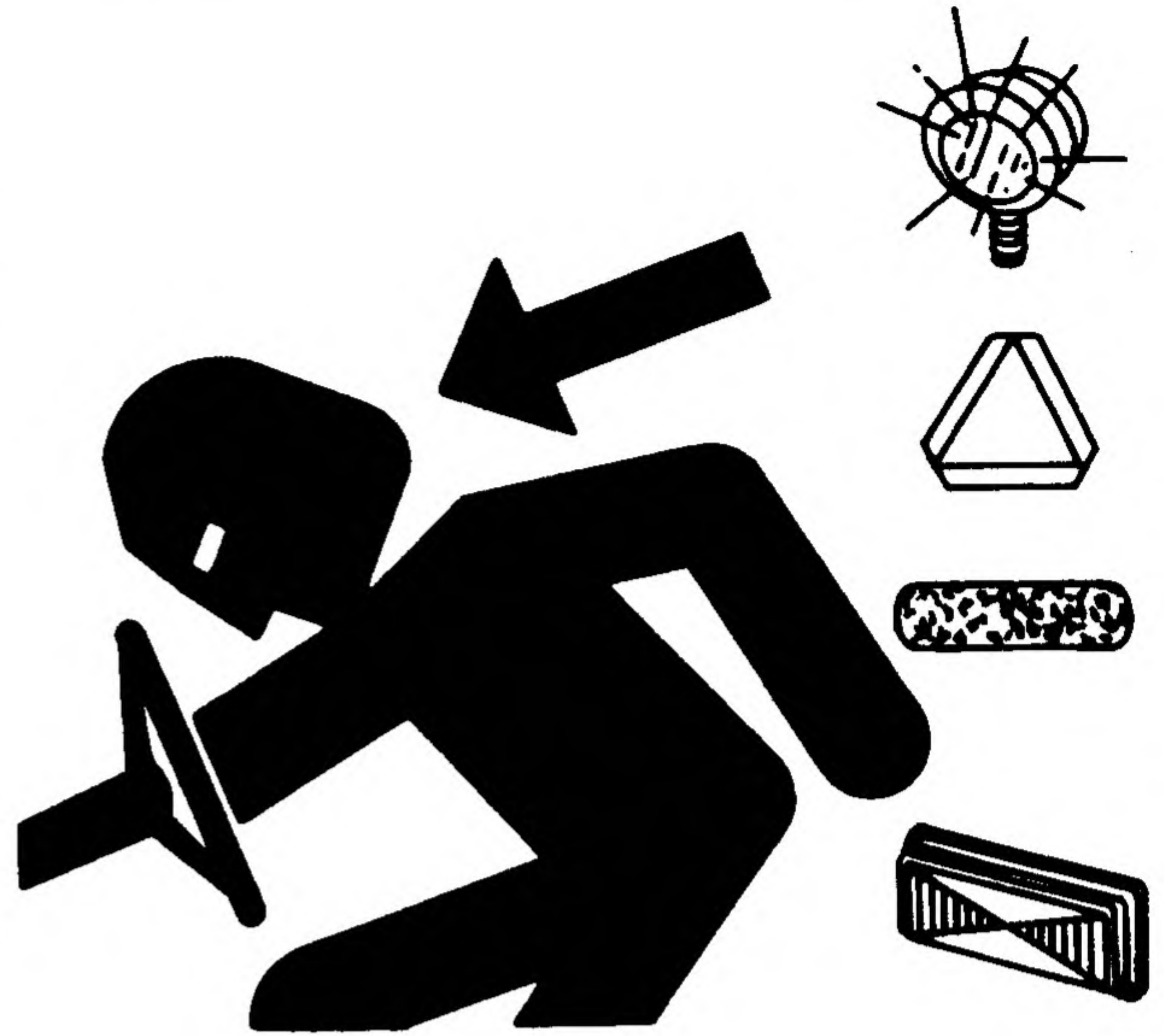
LV,5010WT,G -19-04JUN99-2/2

Transporting

Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.



TS951 -UN-12APR90

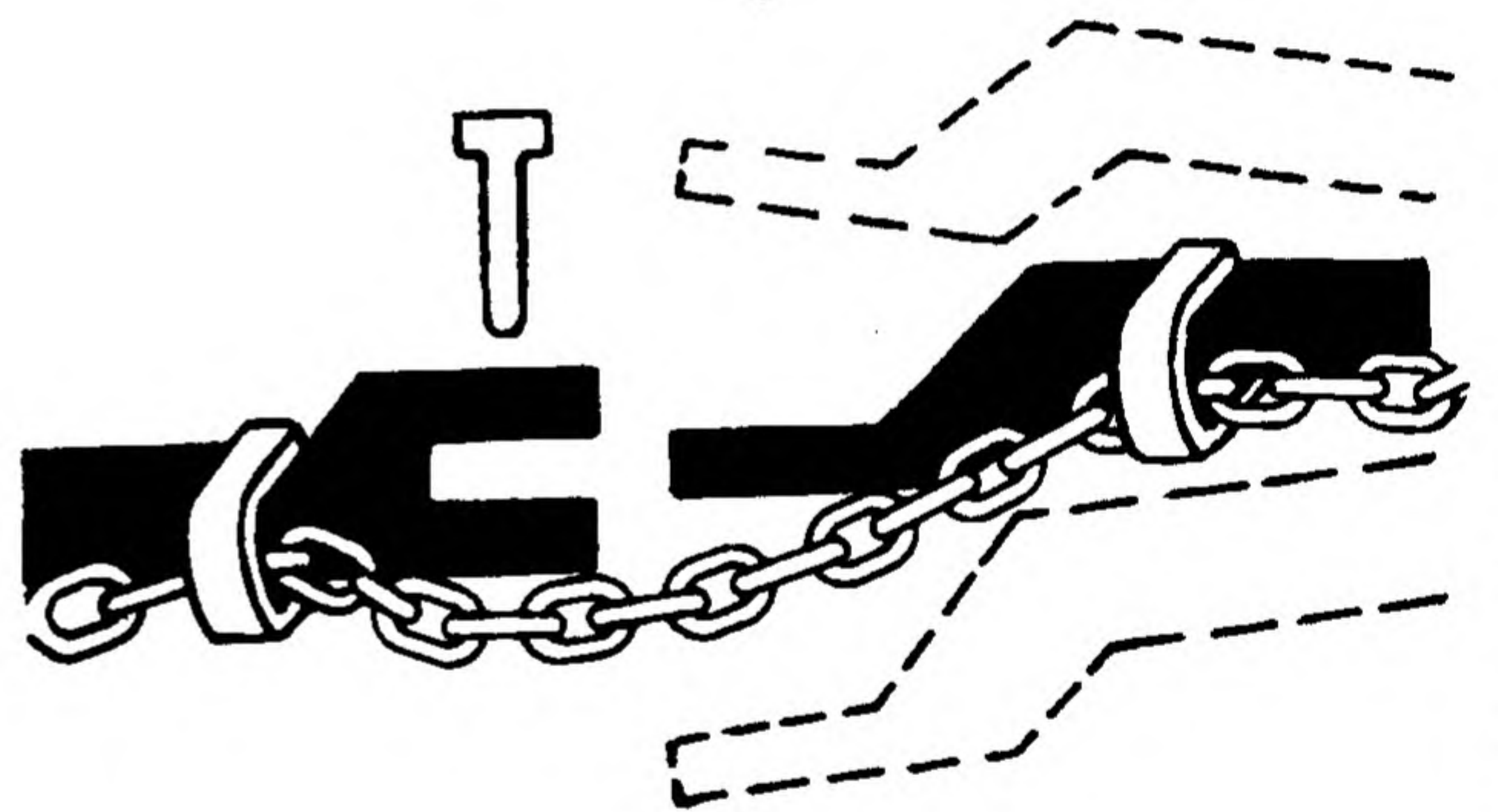
DX,FLASH -19-07JUL99-1/1

Use a Safety Chain

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



TS217 -UN-23AUG88

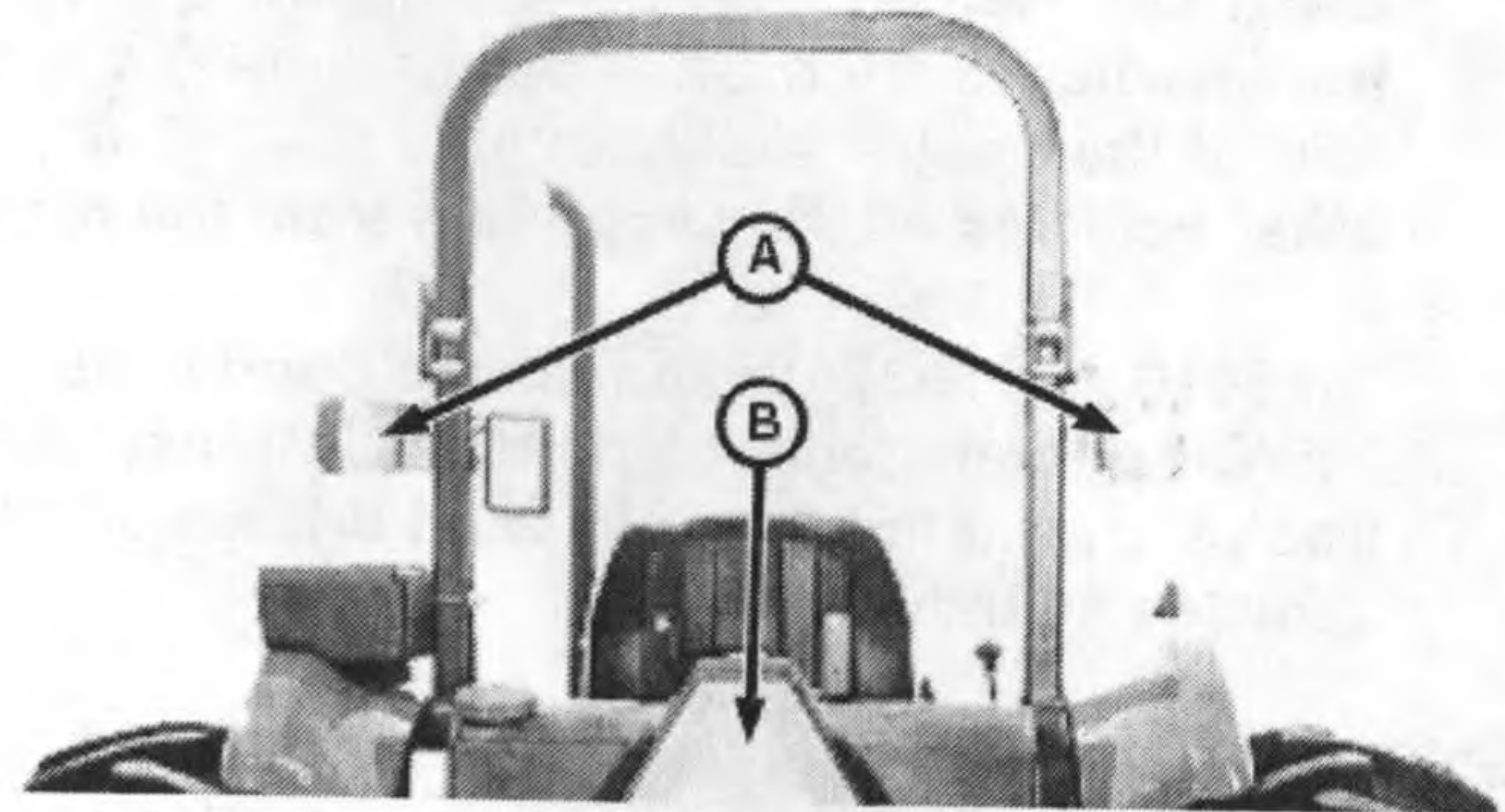
DX,CHAIN -19-03MAR93-1/1

Driving Tractor on Roads

CAUTION: Observe the following precautions when operating on a road.

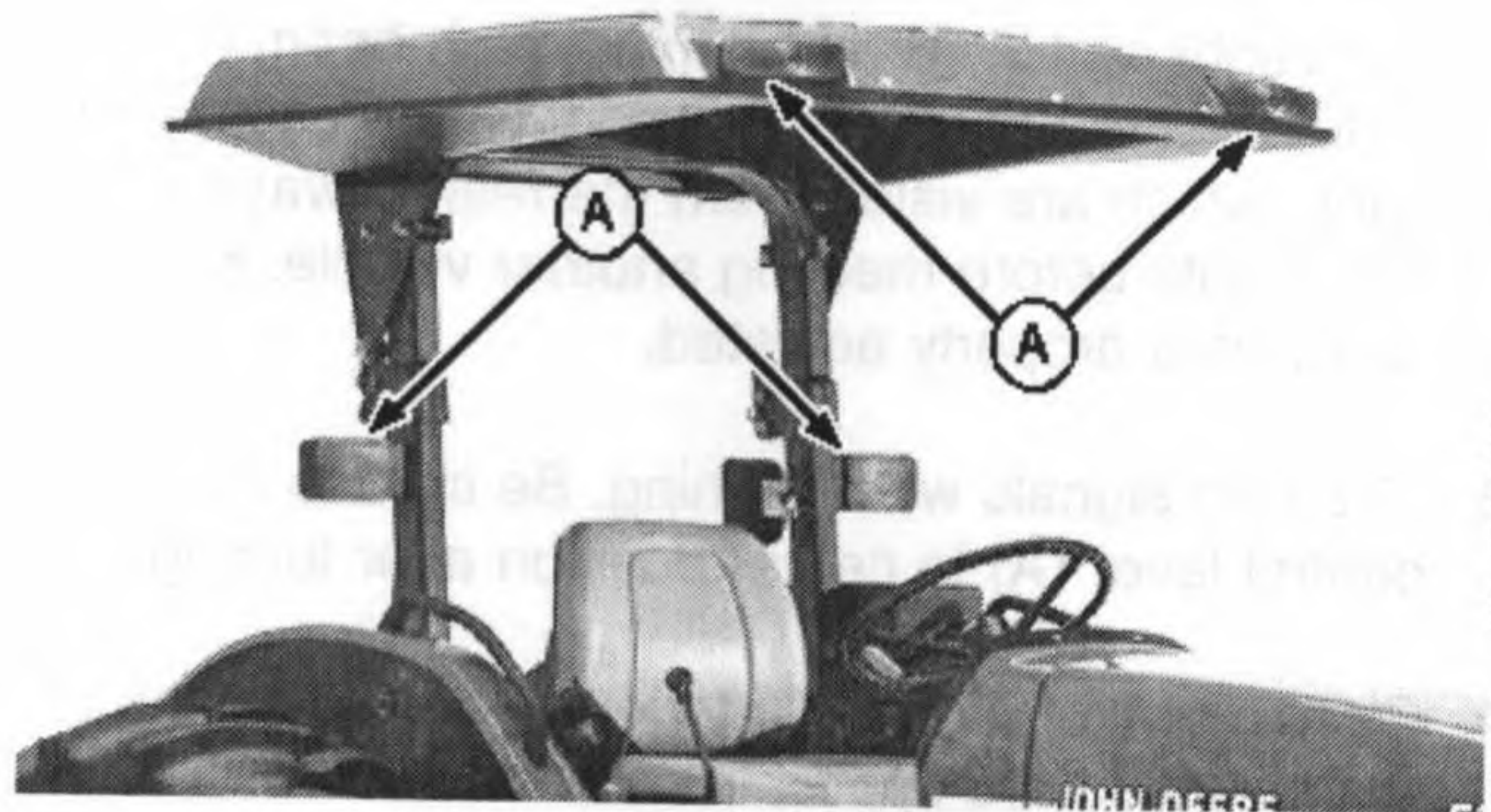
1. Before operating tractor on highway be sure flashing warning lights (A) work properly. Install and use Slow Moving Vehicle (SMV) emblems (B), reflectors, and auxiliary lighting to equipment as required for safety and by local regulations. Clean the SMV emblem for the best visibility.

A—Warning Lights
B—Slow Moving Vehicle Emblem



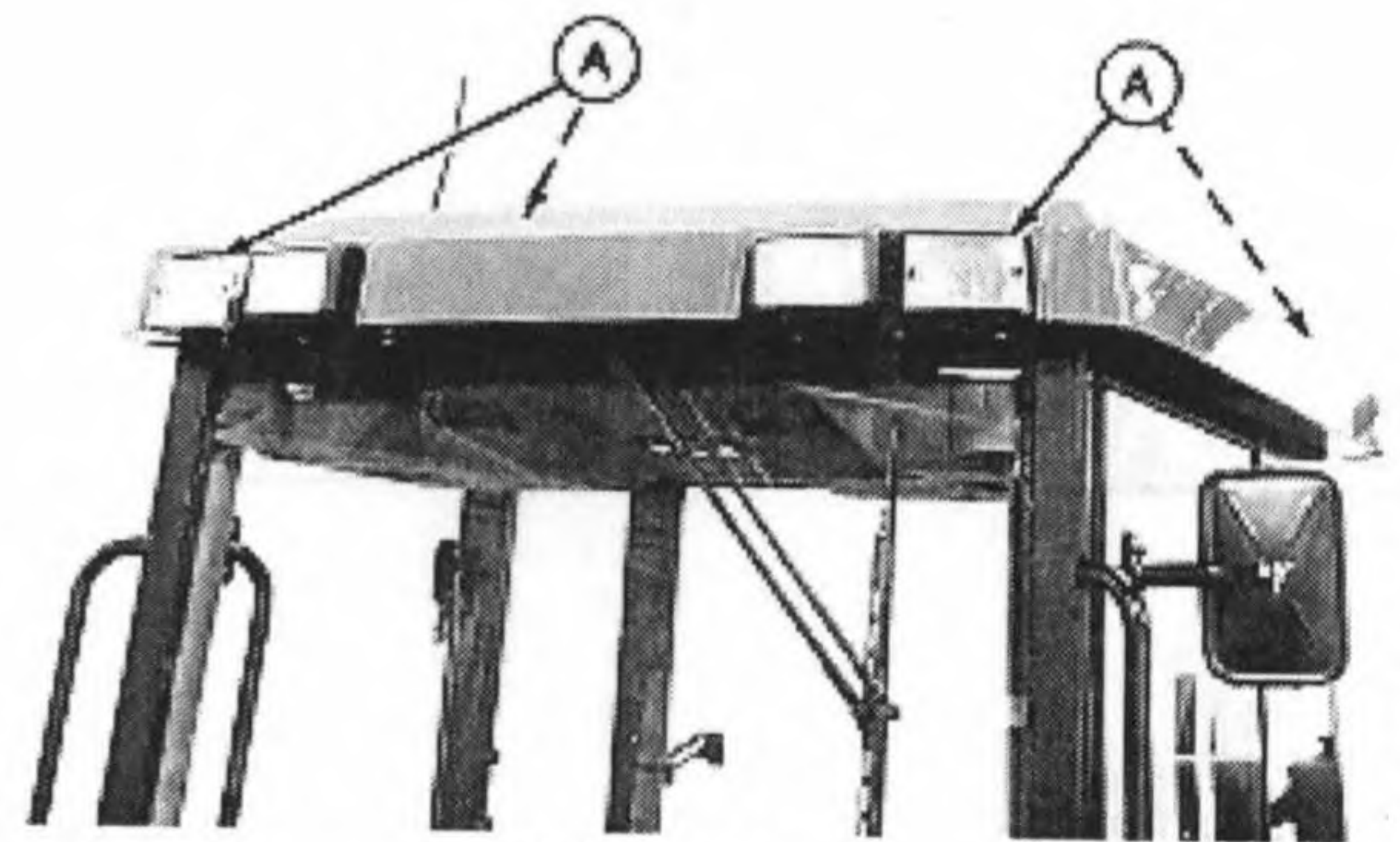
Open Station Tractor

LV3036 -UN-16AUG99



Open Station Tractor with Canopy

LV1938 -UN-07JUN97



Cab Tractor

LV869 -UN-19DEC95

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MX,TRIP,EA3 -19-27MAY99-1/5

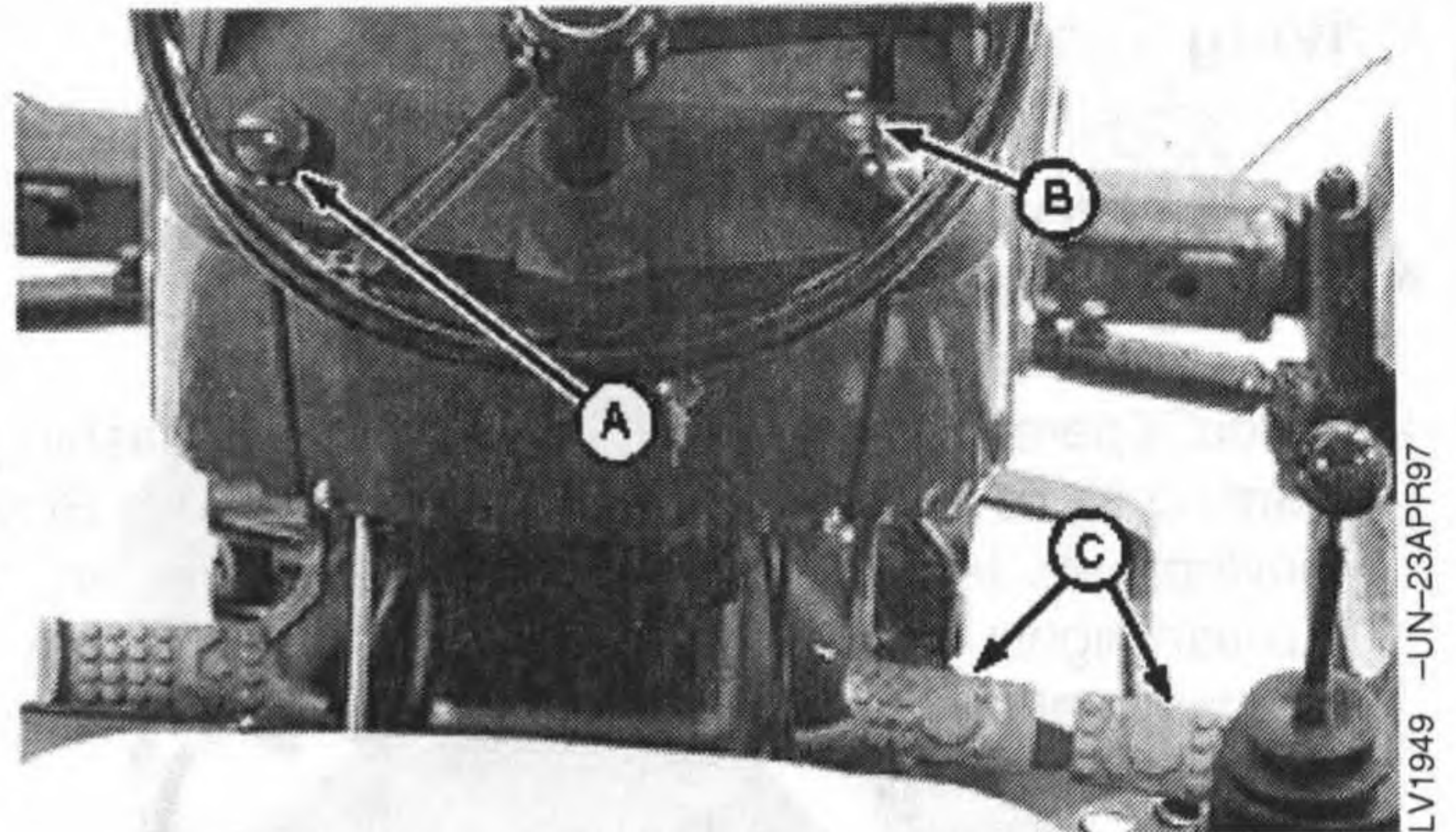


CAUTION: NEVER operate flood lamp(s) when transporting tractor. Clear bright light(s) at the rear of the tractor could confuse drivers of other vehicles as they approach from the rear.

On 5410 and 5510: In addition to flood lamp(s), **NEVER** operate fender lamps when transporting tractor. Bright lights could blind drivers of other vehicles as they approach.

IMPORTANT: Refer to Lights section for detailed descriptions of lighting operations and functions.

2. Turn light switch (B) to warning, high beam headlights or low beam headlights position. Never use bright lights which are visible from the rear. Always dim headlights before meeting another vehicle. Keep headlights properly adjusted.
3. Use turn signals when turning. Be sure to return control lever (A) to center position after turning.
4. Couple brake pedals (C) together before driving on a road. Avoid hard applications of brakes.

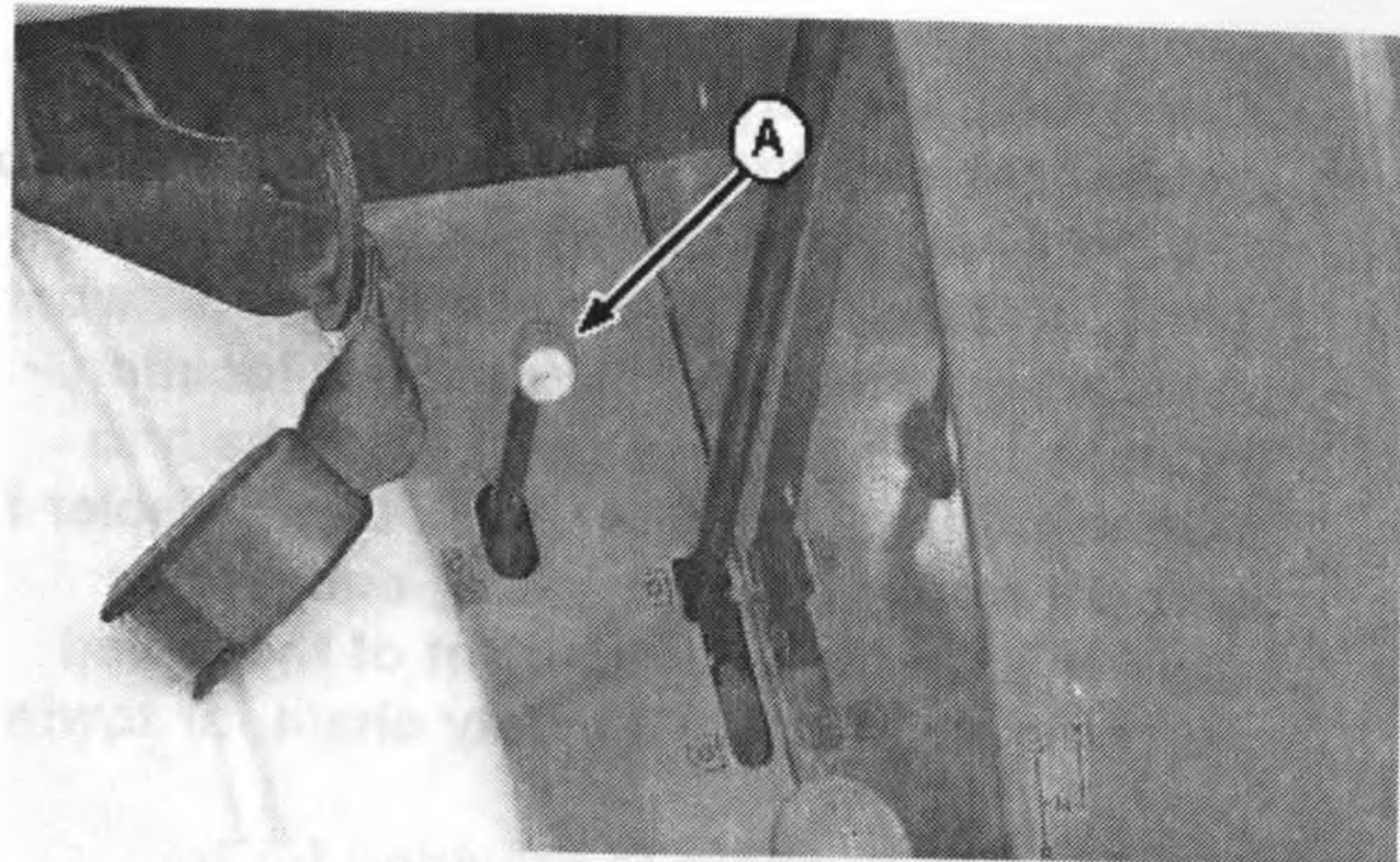


A—Turn Signal Control Lever
B—Light Switch
C—Brake Pedals

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MX,TRIP,EA3 -19-27MAY99-2/5

5. Disengage mechanical front wheel drive (A) when transporting tractor with MFWD. Excessive front tire wear will result from transporting on hard surfaces with the MFWD engaged.
6. Drive slowly enough to maintain safety control at all times. Slow down for hillsides, rough ground, and sharp turns, especially when transporting heavy, rear-mounted equipment.
7. Before going down a hill, shift to a gear low enough to control speed without using brakes. Never coast down hill.
8. When transporting downhill on icy or graveled grades, be alert for skids which could result in loss of steering control. To decrease chance of skids, reduce speed and be sure tractor has proper ballast.



LV1738 -UN-30MAY97

A—MFWD Control Lever

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MX,TRIP,EA3 -19-27MAY99-3/5



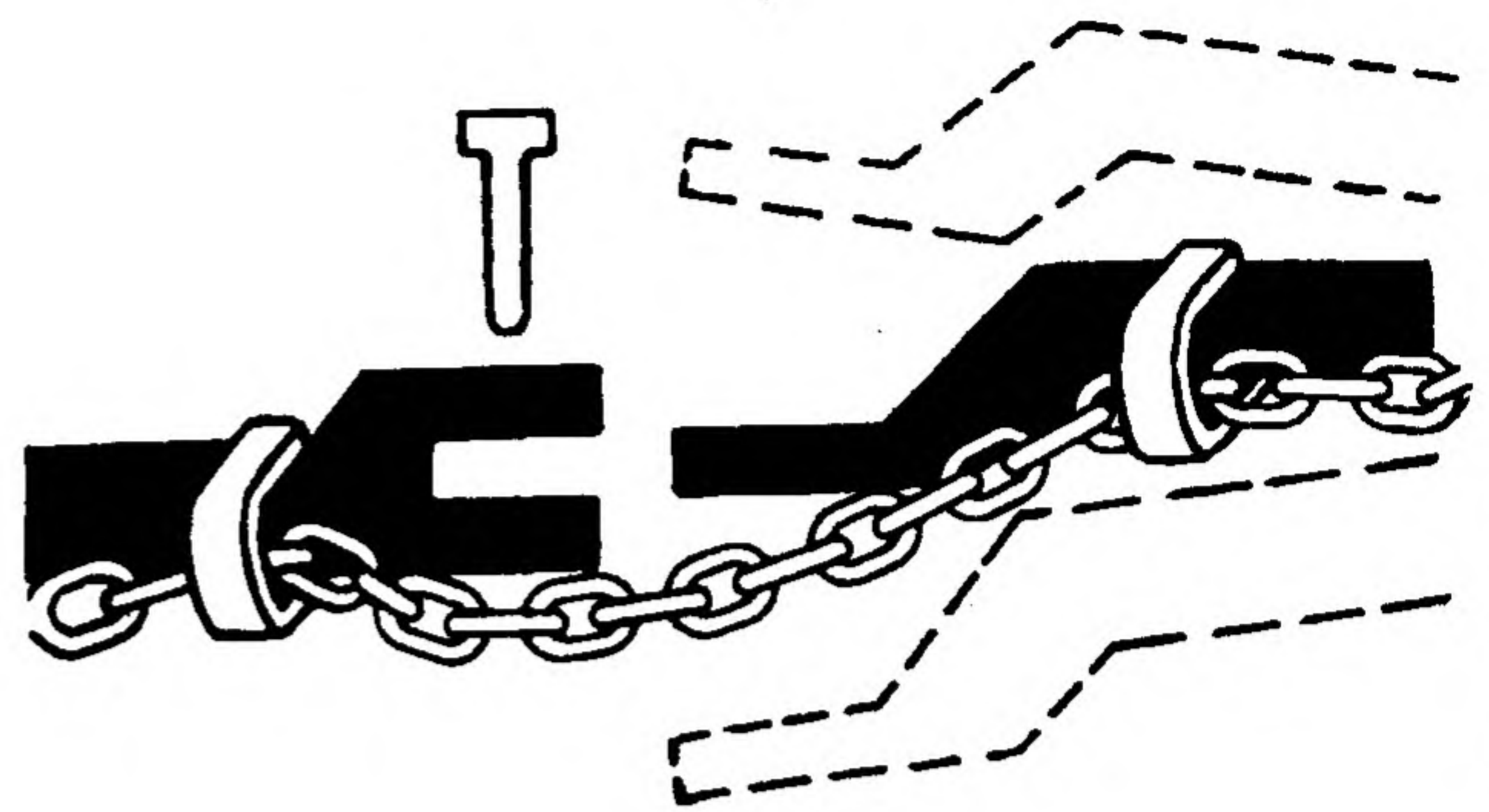
CAUTION: A safety chain will help drawn equipment should it accidentally separate from the drawbar. Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning. See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. **DO NOT** use safety chain for towing.

IMPORTANT: Safety chain is provided for transport only. It must not be used for pulling or towing implements, or other items, not attached to drawbar, or damage to your tractor may result.

NOTE: Attach trailer brakes (if equipped) and check for proper operation.

9. Transporting Towed Loads:

Lock drawbar pin in place, and use safety chain to help control drawn equipment should it accidentally separate from drawbar while transporting.



TS217 -UN-23AUG88

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MX,TRIP,EA3 -19-27MAY99-4/5



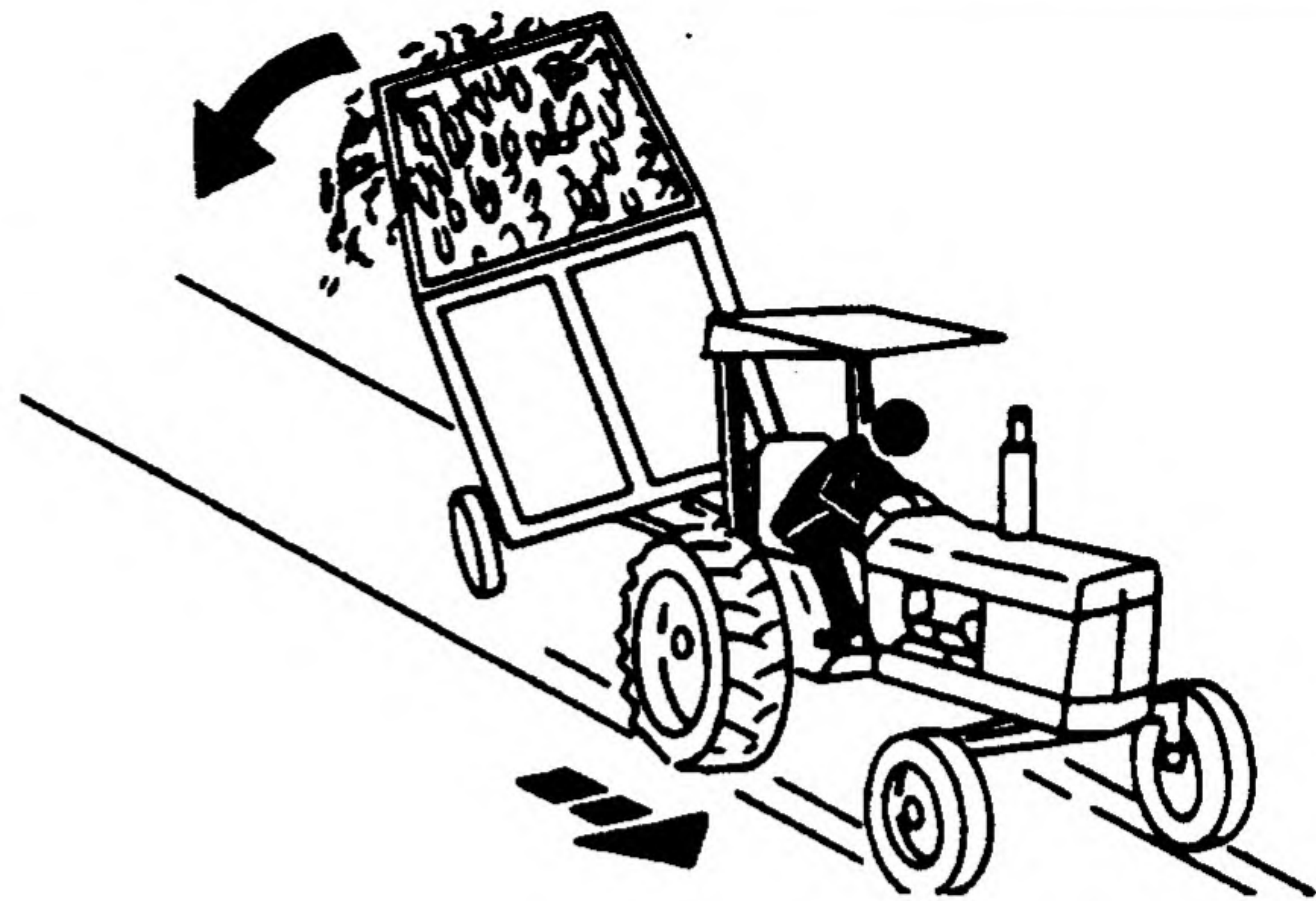
CAUTION: Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

Observe these recommended maximum road speeds, or local speed limits which may be lower:

If towed equipment does not have brakes, do not travel more than 32 km/h (20 mph) and do not tow loads more than 1.5 times the tractor weight.

If towed equipment has brakes, do not travel more than 40 km/h (25 mph) and do not tow loads more than 4.5 times the tractor weight.

Ensure the load does not exceed the recommended weight ratio. Add ballast to recommended maximum for tractor, lighten the load, or get a heavier towing unit. The tractor must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.



TS216 -UN-23AUG88

10. Use caution when operating tractor at transport speeds. Reduce speed if towed load weighs more than tractor and is not equipped with brakes. (See Towed Equipment operator's manual for recommended transport speeds.)
11. Use additional caution when transporting towed loads under adverse surface conditions, when turning and on inclines.
12. Heavy towed or rear mounted implements may start swaying in transport. Excessive swaying will result in loss of steering control. Drive slowly and avoid quick turns of steering wheel. Refer to your implement operator's manual regarding maximum travel speed limitations.

Transport on Carrier

CAUTION: Chain tractor to carrier securely. **DO NOT** chain around mechanical front wheel-drive (MFWD) shaft or axle housing. Drive carrier slowly.

The best method of transporting a disabled tractor is to haul it on a flatbed carrier.

IMPORTANT: Seal exhaust to prevent dirt from entering and damaging engine and/or turbocharger.



LV610 -UN-22APR94

MX,TRIP,FA2 -19-24JUL95-1/1

Towing Tractor

CAUTION: NEVER tow tractor faster than 16 km/h (10 mph). Have an operator steer and brake tractor.

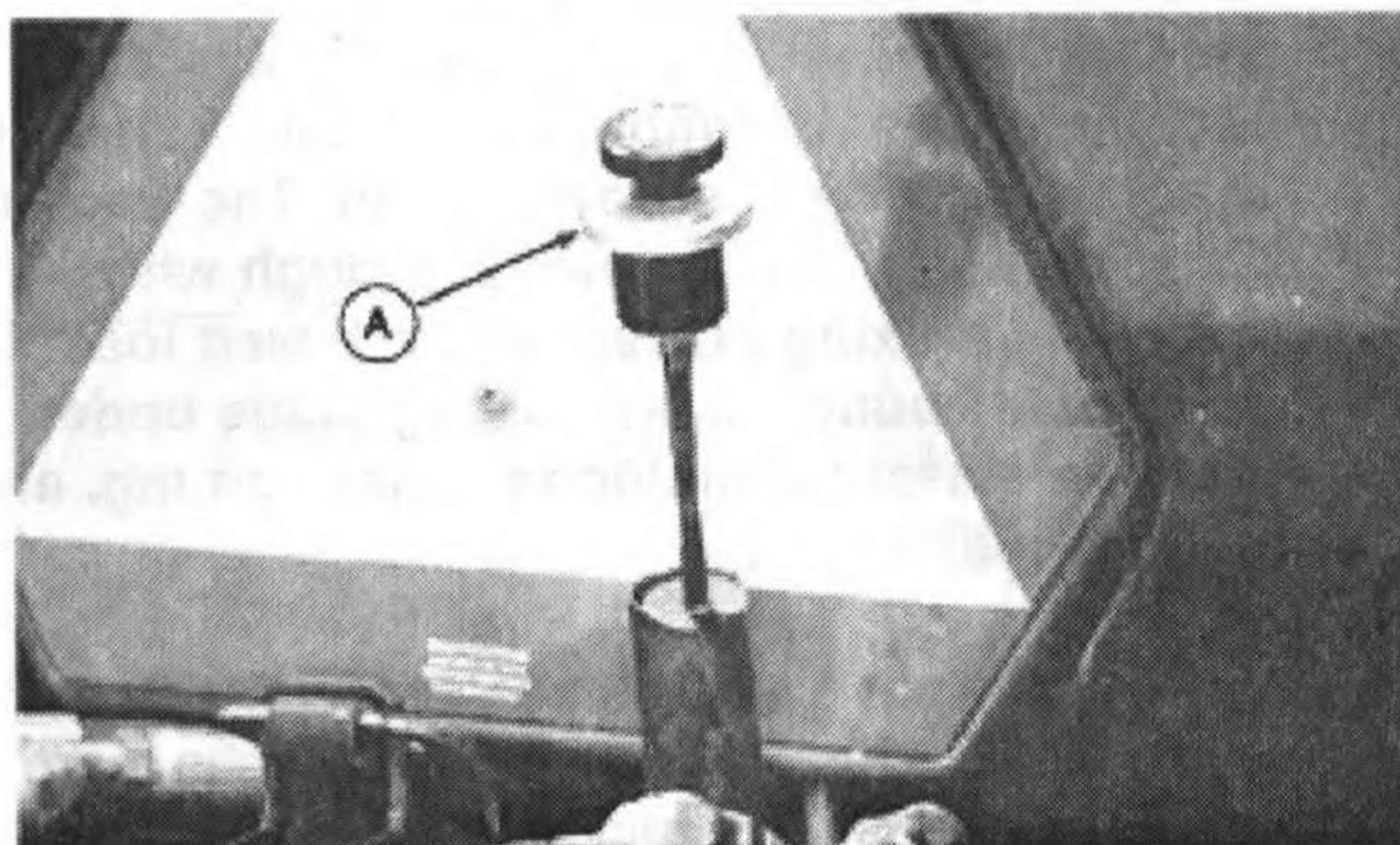
IMPORTANT: DO NOT tow any tractor faster than 16 km/h (10 mph) if oil temperature is below 0°C (32°F).

To avoid damaging transmission-hydraulic system, observe the following precautions:

1. Be sure transmission-hydraulic system oil is to the full mark on the dipstick (A). If the tractor is to be towed with the front wheels raised, add 1 liter of oil for each 90 mm (3-1/2 in.) the wheels are raised. DO NOT raise front wheels more than 305 mm (12 in.) above ground.

NOTE: After transporting tractor, drain oil that was added for towing.

2. Make sure the differential lock is disengaged.
3. Make sure range and gear levers are in neutral.



A—Transmisison-Hydraulic Oil Dipstick

M46967 -UN-31JAN92

MX,TRIP,HA1 -19-21APR94-1/1

Fuels, Lubricants, and Coolant

Handle Fuel Safely—Avoid Fires

Use only diesel fuel.

Handle fuel with care, it is highly flammable.

DO NOT refuel machine:

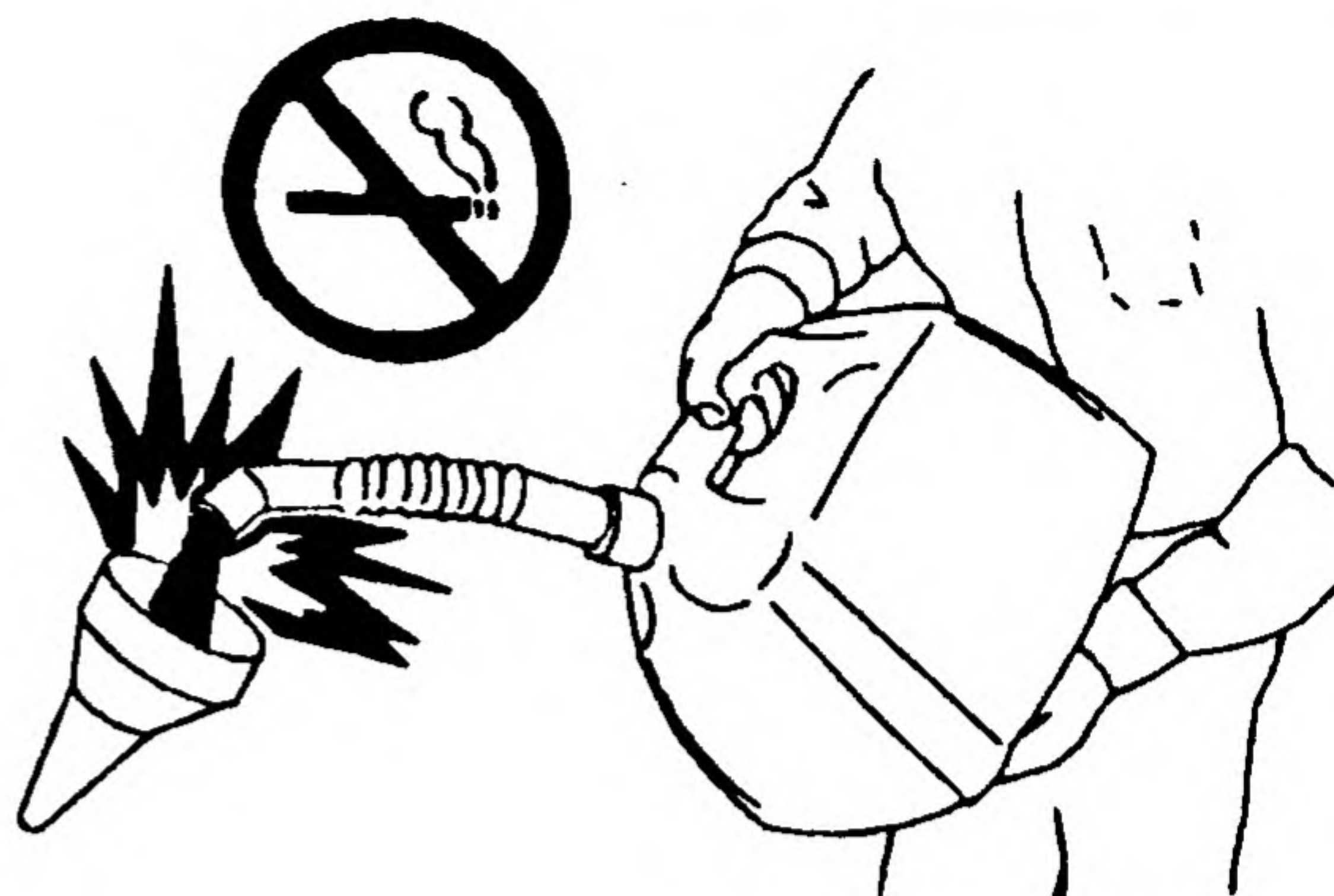
- While you smoke.
- When machine is near open flame or sparks.
- When engine is running. STOP engine.

Fill fuel tank outdoors.

Help prevent fires:

- Clean oil, grease and dirt from machine.
- Clean up spilled fuel immediately.

Do not store machine with fuel in tank in a building where fumes may reach an open flame or spark.



M73115 -JUN-09MAR90

MX,FIRE,5A1 -19-22JUL94-1/1

Handle Fluids Safely—Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



TS227 -JUN-23AUG88

DX,FLAME -19-29SEP98-1/1

Fuel Storage

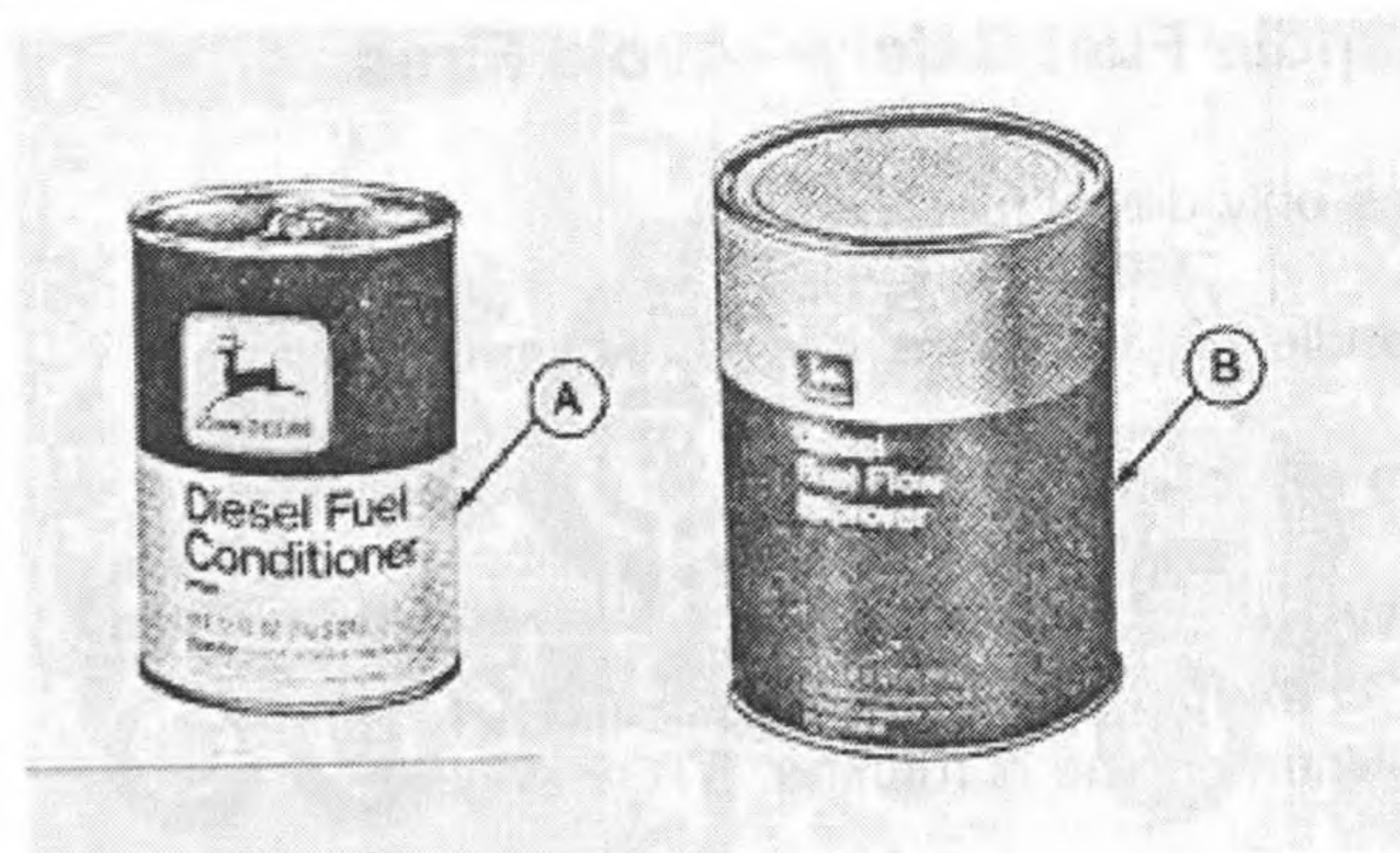
Buy good quality, clean fuel from a reputable supplier.

Proper fuel storage is critically important. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom.

Avoid storing fuel over long periods of time. If there is a very slow turnover of fuel in the fuel tank or supply tank, it may be necessary to add John Deere Diesel Fuel Conditioner (A) to prevent water condensation. (See your John Deere dealer for proper service or maintenance recommendations.)

Store fuel in a convenient place away from buildings.

NOTE: To reduce fuel gelling and control wax separation during cold weather, John Deere Fuel Flow Improver (B), or equivalent, may be added to fuel or bulk storage tank.



A—John Deere Diesel Fuel Conditioner
B—John Deere Fuel Flow Improver

RG5309 —UN-15DEC88

MX,FLIP,AA1 —19-26JUL94-1/1

Cold Weather Operation

Additional information on cold weather operation is available from your John Deere dealer.

MX,FLIP,B —19-18MAR92-1/1

Diesel Fuel

Use either Grade No. 1-D or Grade No. 2-D fuel as defined by ASTM Designation D975 for diesel fuels. Find expected air temperature at time of start on thermometer scale in chart. Correct diesel fuel grade is shown to the right of scale.

NOTE: At altitudes above 1500 m (5000 ft) use grade 1-D for all temperatures.

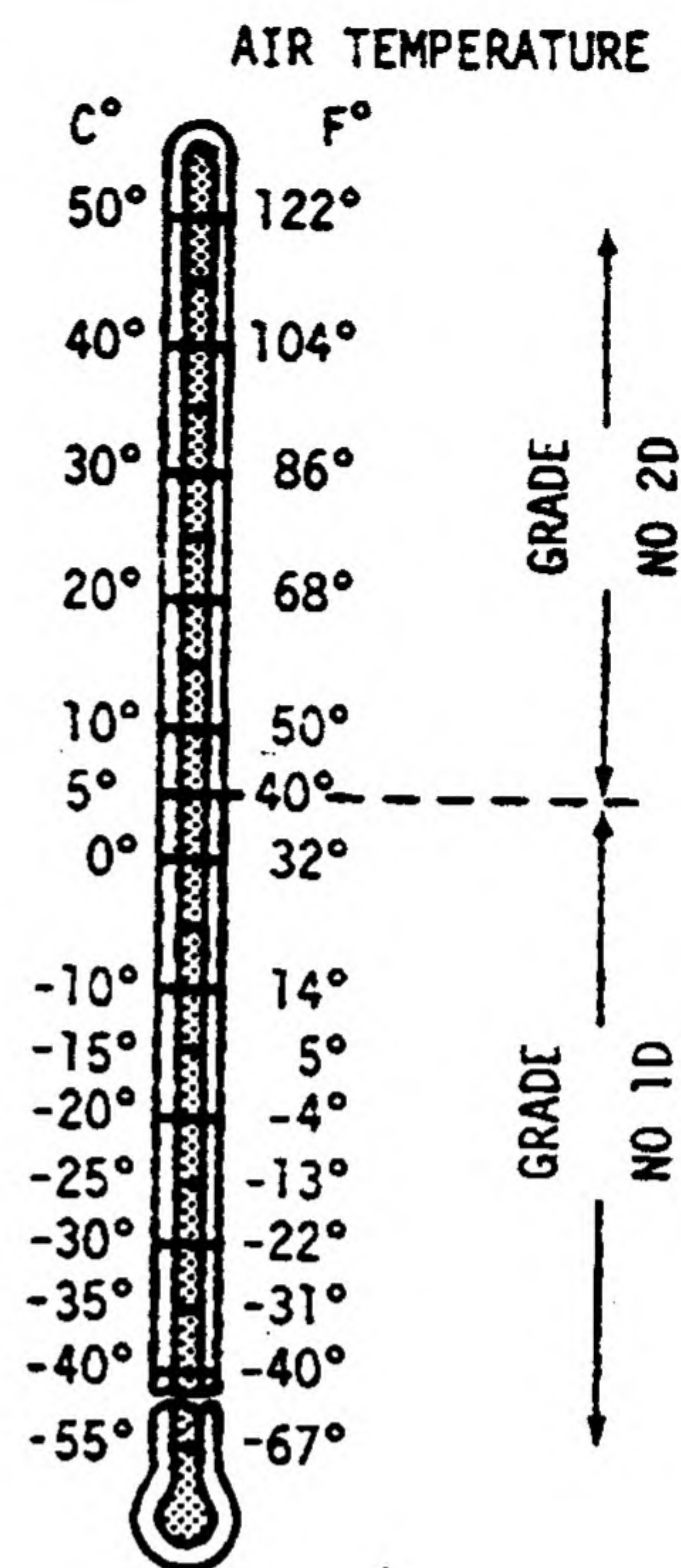
Fuel sulphur content should be less than 1.0 percent preferably less than 0.5 percent. Diesel fuel having sulphur content higher than 1.0 percent may cause increase wear on metal engine parts because of acids produced by sulphur during combustion.

IMPORTANT: If fuel sulphur content exceeds 0.7 percent, the engine oil drain interval must be reduced by 50 percent to 125 hours.

Cetane number should be no less than 40 to assure satisfactory starting and overall performance.

Cloud point should be at least 6°C (10°F) below lowest expected air temperature at time of starting. Wax can separate from fuel when temperature decreases to cloud point and may plug filter.

If you operate your tractor at temperatures below the limits shown, consult your dealer for special lubricants and starting aids.



E20380 -19-13MAR89

MX, FLIP, CA2 -19-24JUL95-1/1

Fill Fuel Tank



CAUTION: Handle fuel with care: It is highly flammable. **DO NOT** refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease and debris. Always clean up spilled fuel.



TS202 -UN-23AUG88

Fill fuel tank at end of each days operation. This prevents condensation in tank as moist air cools.

Specification

5210, 5310 and 5410 Open Station Fuel Tank Capacity	68 L (18 gal) Approximate
5510 Open Station Fuel Tank Capacity	87 L (23 gal) Approximate
Cab Fuel Tank Capacity	87 L (23 gal) Approximate

IMPORTANT: The fuel tank uses a sealed filler cap. If a new filler cap is required, always replace it with a sealed cap.

NOTE: To reduce fuel gelling and control wax separation during cold weather, John Deere Fuel Flow Improver, or equivalent, may be added to fuel or bulk storage tank.

LV,5010FLC,A -19-03JUN97-1/1

Alternative and Synthetic Lubricants

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some John Deere brand coolants and lubricants may not be available in your location.

Consult your John Deere dealer to obtain information and recommendations.

Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic oils.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

DX,ALTER -19-18MAR96-1/1

Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Whenever possible, store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST -19-18MAR96-1/1

Diesel Engine Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oil is preferred:

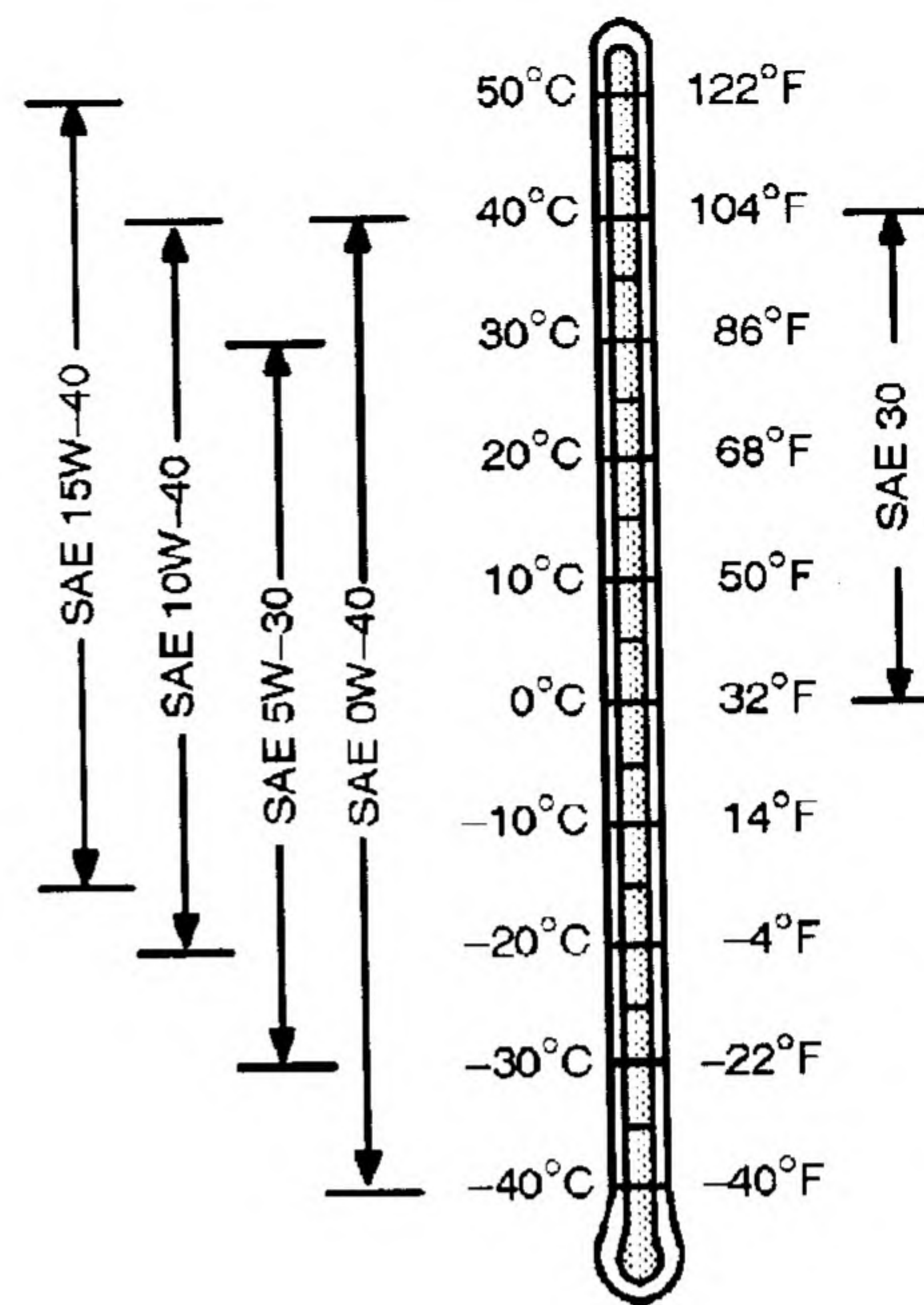
- **John Deere PLUS-50®**

The following oil is also recommended:

- John Deere TORQ-GARD SUPREME®

Other oils may be used if they meet one or more of the following:

- API Service Classification CG-4
- API Service Classification CF-4
- ACEA Specification E3
- ACEA Specification E2



TS1661 -UN-10OCT97

Multi-viscosity diesel engine oils are preferred.

If diesel fuel with sulfur content greater than 0.5% is used, reduce the service interval by 50%.

Extended service intervals may apply when John Deere preferred engine oils are used. Consult your John Deere dealer for more information.

*PLUS-50 is a registered trademark of Deere & Company.
TORQ-GARD SUPREME is a registered trademark of Deere & Company.*

DX,ENOIL -19-10OCT97-1/1

Oil Filters

Filtration of oils is critical to proper operation and lubrication.

Always change filters regularly as specified in this manual.

Use filters meeting John Deere performance specifications.

DX,FILT -19-18MAR96-1/1

Diesel Engine Coolant

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37°C (-34°F).

The following engine coolant is preferred for service:

- John Deere COOL-GARD Prediluted Coolant

The following engine coolant is also recommended:

- John Deere COOL-GARD Coolant Concentrate in a 40 to 60% mixture of concentrate with quality water.

Other low silicate ethylene glycol base coolants for heavy-duty engines may be used if they meet one of the following specifications:

- ASTM D5345 (prediluted coolant)
- ASTM D4985 (coolant concentrate) in a 40 to 60% mixture of concentrate with quality water

Coolants meeting these specifications require use of supplemental coolant additives, formulated for heavy-duty diesel engines, for protection against corrosion and cylinder liner erosion and pitting.

A 50% mixture of ethylene glycol engine coolant in water provides freeze protection to -37°C (-34°F). If

protection at lower temperatures is required, consult your John Deere dealer for recommendations.

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol base engine coolant concentrate.

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

Coolant Drain Intervals

Drain the factory fill engine coolant, flush the cooling system, and refill with new coolant after the first 3 years or 3000 hours of operation. Subsequent drain intervals are determined by the coolant used for service. At each interval, drain the coolant, flush the cooling system, and refill with new coolant.

When John Deere COOL-GARD is used, the drain interval may be extended to 5 years or 5000 hours of operation, provided that the coolant is tested annually AND additives are replenished, as needed, by adding a supplemental coolant additive.

If COOL-GARD is not used, the drain interval is reduced to 2 years or 2000 hours of operation.

DX.COOL3 -19-05FEB99-1/1

Liquid Coolant Conditioner

John Deere Liquid Coolant Conditioner (part number RE23182) is recommended for wet-sleeve diesel engines not having a coolant filter option. Other conditioners may be used if they contain non-chromate inhibitors.



CAUTION: Coolant conditioner contains alkali. **AVOID** contact with eyes. Avoid prolonged or repeated contact with skin. **DO NOT** take internally. In case of contact, immediately wash skin with soap and water. For eyes, flush with large amounts of water for at least 15 minutes. Call physician. Keep out of reach of children.

IMPORTANT: **DO NOT** use liquid conditioner if engine is equipped with a John Deere Coolant Filter Conditioner, since the correct inhibitors are already contained inside the filter. If both are used, a gel-type deposit is created which could inhibit heat transfer and block coolant flow. John Deere Liquid Coolant Conditioner does not protect against freezing.

Add 30 ml of John Deere Liquid Coolant Conditioner for every liter of coolant added (4 fluid ounces per gallon). When servicing cooling system at 750 hours, only 1/2 of the original charge is required.

Coolant Conditioner Required			
Model	Coolant Capacity	With Fresh Coolant	At 750 Hour Service
5210 and 5310	9.5 L (10 qt)	285 mL (10 oz)	142 mL (5 oz)
5410 and 5510	10.8 L (11.4 qt)	285 mL (10 oz)	142 mL (5 oz)



RG4690 -UN-14DEC88

LV,5010FLC,B -19-03JUN97-1/1

Anti-Chatter Transmission/Hydraulic Oil

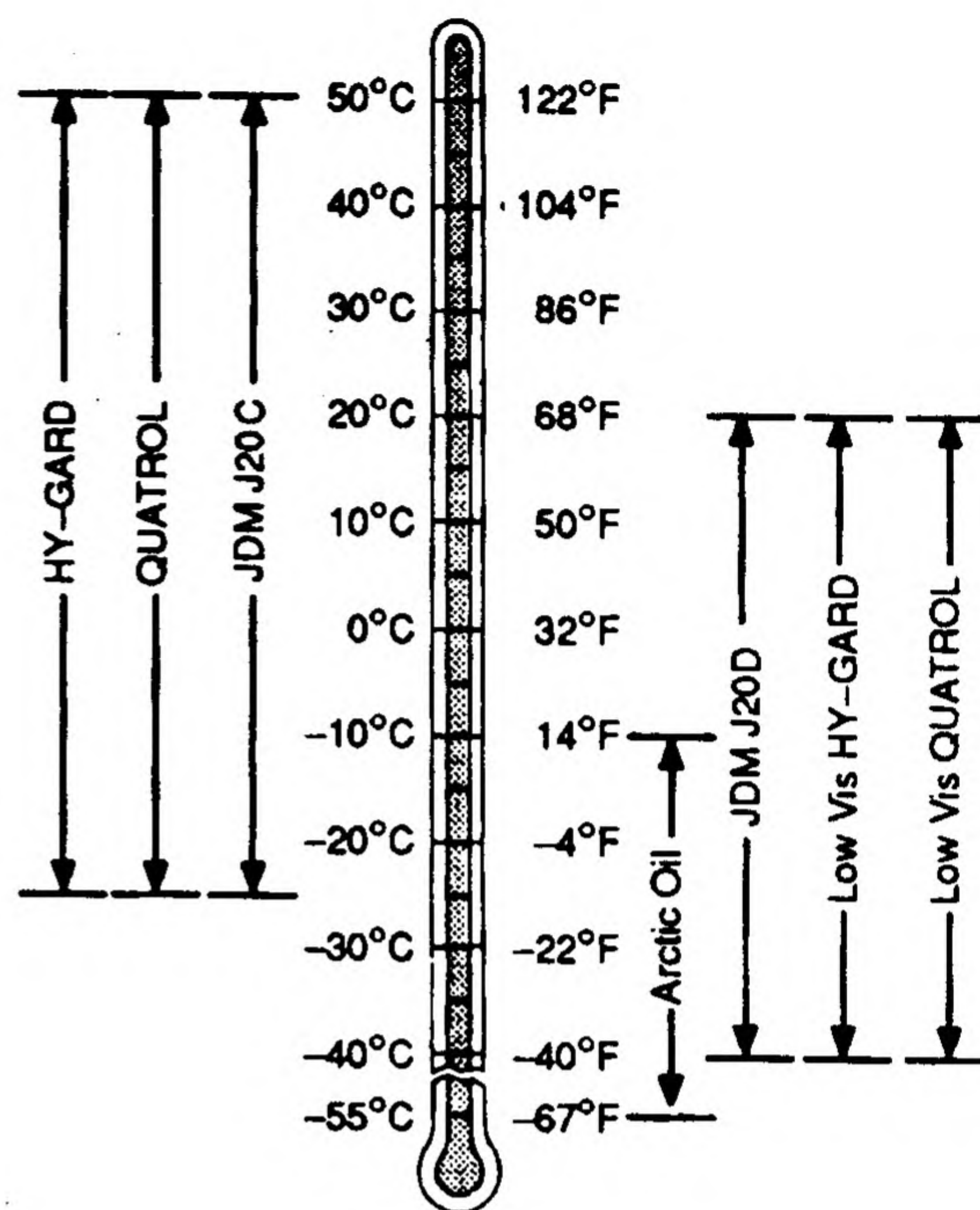
Depending upon the expected air temperature range during the drain interval, use oil viscosity shown on the adjoining temperature chart.

John Deere HY-GARD® Transmission/Hydraulic Oil is recommended. HY-GARD® oil is specially formulated to minimize wet brake chatter and to provide maximum protection against mechanical wear, corrosion, and foaming.

Other oils may be used if they meet John Deere Standard JDM J20C or J20D.

Oils meeting Military Specification MIL-L-46167A may be used as arctic oils for temperatures below -40°C (-40°F).

For operation below -25°C (-13°F) use of J20D oil is required to protect hydraulic system. Be sure to drain and fill system with a regular viscosity oil at temperature indicated on chart. Steering circuit should be drained when changing oils to avoid mixing oils of different viscosities.



HY-GARD is a registered trademark of Deere & Company.

LV,5010FLC,C -19-03JUN97-1/1

Use Correct Hydraulic-Transmission Filter Element

To protect systems, replace transmission-hydraulic oil filter with a John Deere service filter element. Minimum and maximum performance specifications are printed on John Deere filters. Other filters may be used if they meet these performance specifications.

See Lubrication and Maintenance section for recommended filter change intervals.

MX,FLIP,H -19-18MAR92-1/1

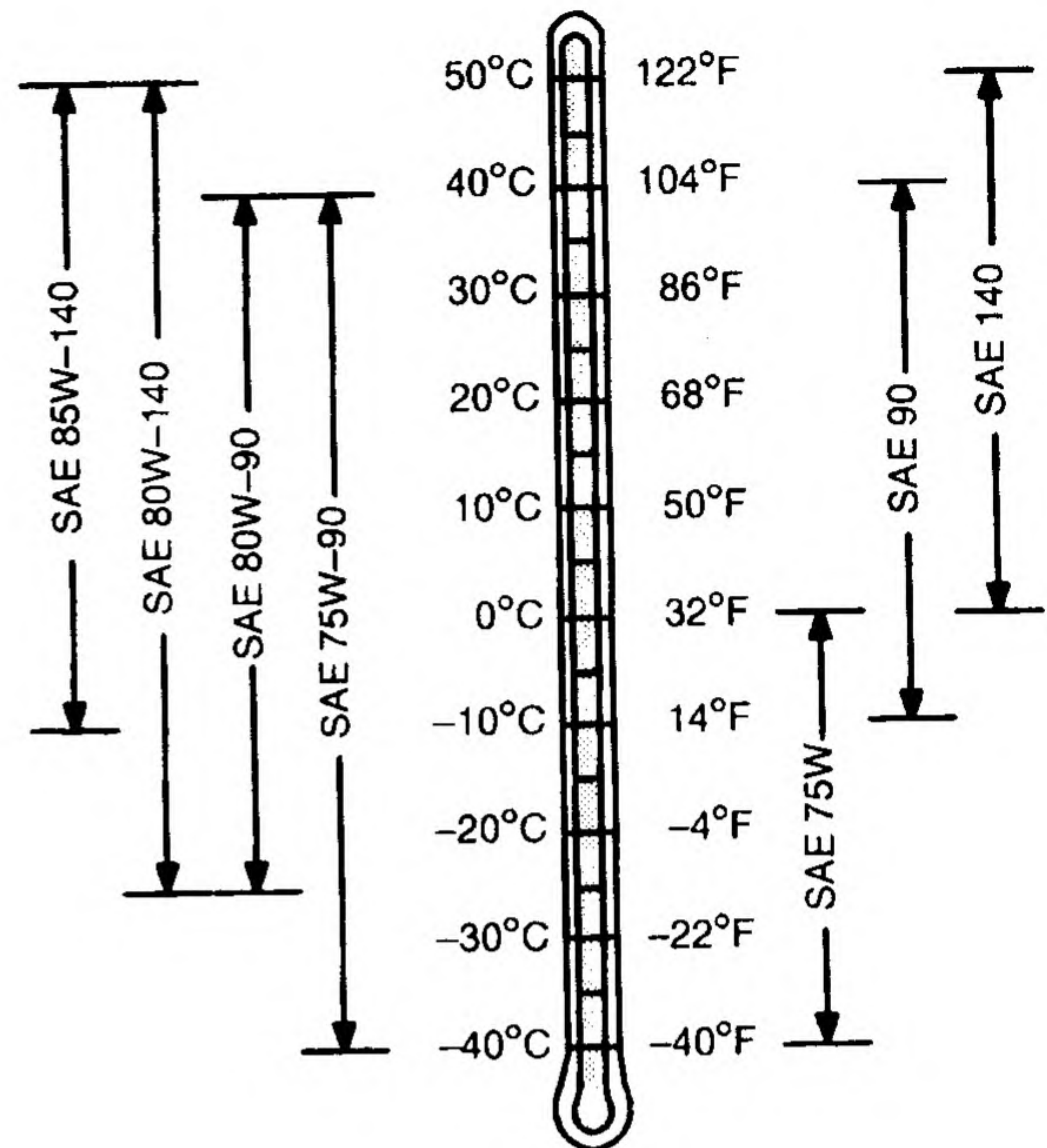
Gear Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oils are preferred:

- John Deere GL-5 GEAR LUBRICANT
- John Deere EXTREME-GARD™

Other oils may be used if they meet API Service Classification GL-5.



EXTREME-GARD is a trademark of Deere & Company.

DX, GEOIL -19-07JUL99-1/1

TS1653 -UN-14MAR96

Grease

Depending upon the expected air temperature range during the service interval, use grease as shown on the adjoining table.

John Deere High-Temperature/Extreme-Pressure/Non-Clay Grease is recommended.

If other greases are used, they must be greases meeting SAE Multipurpose High Temperature Grease with Extreme Pressure (EP) Performance and capable of operating at compartment temperatures above 150°C (302°F)

At temperatures below -30°C (-22°F), use arctic greases such as those meeting Military Specification MIL-G-10942C.

Grease Type	Temperature Limits
Arctic Grease	Below -10°C (14°F)
SAE (NLGI) #0 or #1	0°C to -30°C (32°F to -22°F)
SAE (NLGI) #2	50°C to 0°C (122°F to 32°F)
JD High Temperature	50°C to -10°C (122°F to 14°F)

MX, FLIP, IA1 -19-21APR94-1/1

Lubrication and Maintenance

Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.



TS953 -JN-15MAY90

DX,TORCH -19-03MAR93-1/1

Clean Vehicle of Hazardous Pesticides

CAUTION: During application of hazardous pesticides, pesticide residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous pesticides.

When exposed to hazardous pesticides, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

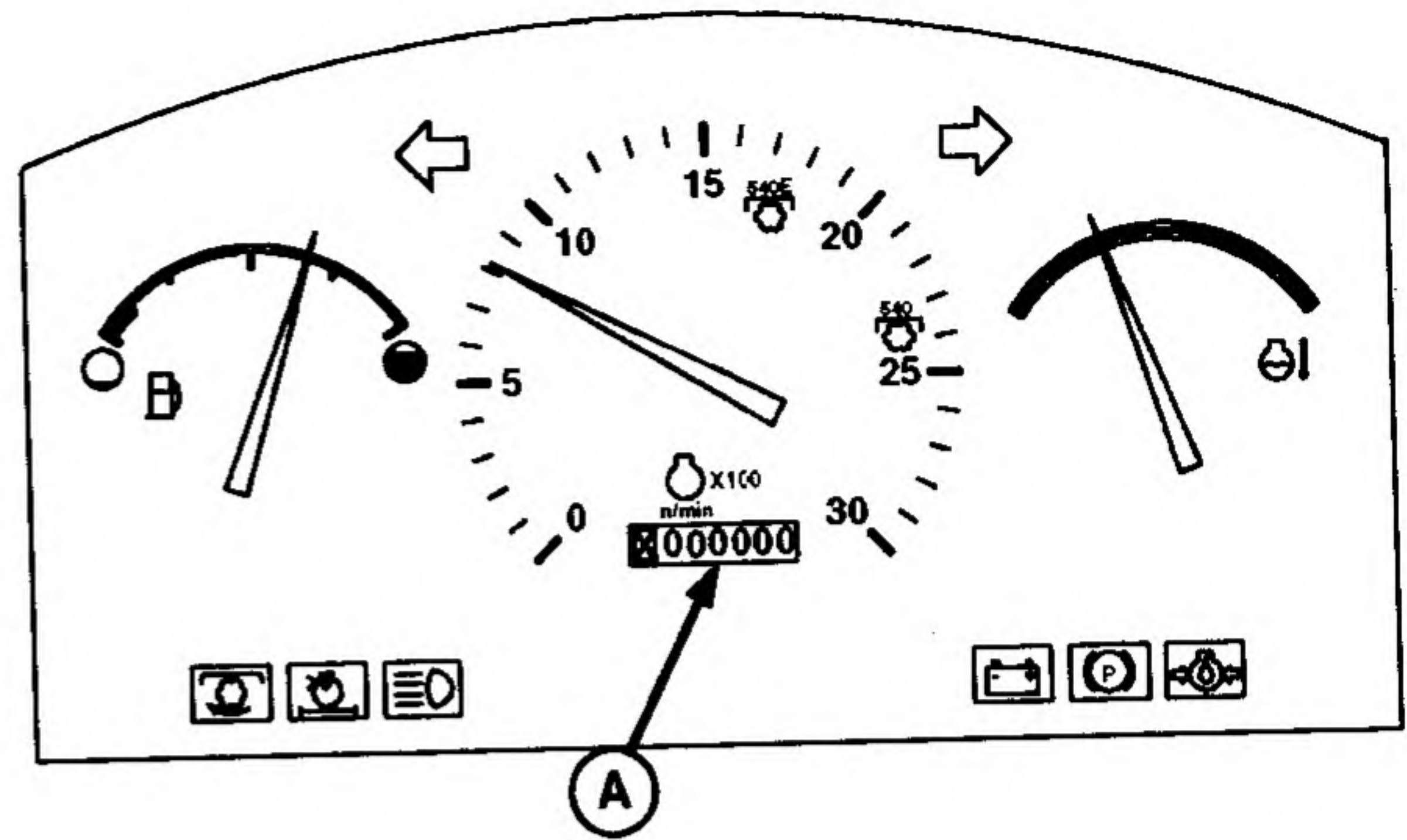
DX,CABS2 -19-03MAR93-1/1

Observe Service Intervals

Using hour meter (A) as a guide, perform all services at the hourly intervals indicated on the following pages. Keep a service record on charts provided in the Lubrication and Maintenance Record Charts section.

IMPORTANT: Recommended service intervals are for average conditions. Service **MORE OFTEN** if tractor is operated under adverse conditions.

A—Hour Meter



LV,5010LM,A -19-03JUN97-1/1

LV1752 -UN-29MAY97

Use Correct Lubricant

IMPORTANT: Use only lubricants meeting specifications outlined in Fuels, Lubricants, and Coolant section when performing tractor service.

LV,5010LM,C -19-10SEP97-1/1

Break-In Service

IMPORTANT: Keep wheel hardware tight to avoid tractor damage. Check wheel hardware torque before operating, twice during first ten hours of operation, after fifty hours of operation, and periodically thereafter.

During the First 10 Hours of Operation:

Perform daily or 10 hours service. (See Service Intervals in Lubrication and Maintenance section.)

Tighten wheel hardware. (See Wheels, Tires, and Treads section.)

After the First 50 Hours of Operation:

Tighten wheel hardware. (See Wheels, Tires, and Treads section.)

Check alternator/fan belt tension and tighten air intake and cooling system hose clamps

Check A/C compressor belt tension (cab)

Perform 50 Hours Service

After the First 100 Hours of Operation:

Replace transmission-hydraulic filter element

Change engine oil and filter¹

¹ See Engine Break-In Oil in Service section for additional information.

Service Intervals

Every 10 Hours

- Check engine oil level
- Check coolant level
- Drain water and sediment from fuel tank and fuel filter
- Lubricate tie rod ends¹
- Lubricate steering spindles¹
- Lubricate front axle pivot pin(s)¹
- Lubricate rear axle bearings¹

Every 50 Hours

- Check transmission-hydraulic system oil level
- Check MFWD axle hub oil level
- Clean and check battery
- Inspect all tires
- Lubricate front axle pivot pin(s)
- Lubricate steering spindles
- Inspect tractor for loose nuts and bolts

First 100 Hours

- Change engine oil and filter²
- Replace transmission-hydraulic filter

Every 250 Hours

- Service air cleaner
- Change engine oil and filter³
- Replace transmission-hydraulic filter³
- Clean and check battery³
- Inspect and adjust alternator/fan belt
- Inspect and adjust A/C compressor belt (Cab)
- Lubricate 3-point hitch
- Check neutral start system
- Check clutch pedal free travel

- Clean operator enclosure air filters (Cab)

Every 500 Hours

- Replace fuel filter

Every 600 Hours

- Change oil in MFWD axle housing
- Clean engine crankcase vent tube
- Repack front wheel bearings (Adjustable front axle)
- Check and tighten all hoses and hose clamps
- Check cooling system for leaks
- Lubricate rear axle bearings
- Check engine idle speeds
- Have your John Deere dealer:
Check front axle pivot pin
Adjust engine valve clearance
Inspect fuel injectors

Every 1200 Hours

- Change transmission-hydraulic oil and filter
- Clean transmission-hydraulic pickup screen

Annually

- Change engine oil and filter³
- Replace air cleaner elements³

Every 2 Years or 2000 Hours (Whichever Comes First)

- Flush cooling system

Service As Required

¹ Only necessary when operating in extremely wet and muddy conditions.

² See Engine Break-In Oil in Service section for additional information.

³ See a previous interval for procedure.

Lubrication and Maintenance

- Service air cleaner
- Adjust throttle friction
- Drain water and sediment from fuel tank and fuel filter³
- Air conditioning system (Cab)

³ See a previous interval for procedure.

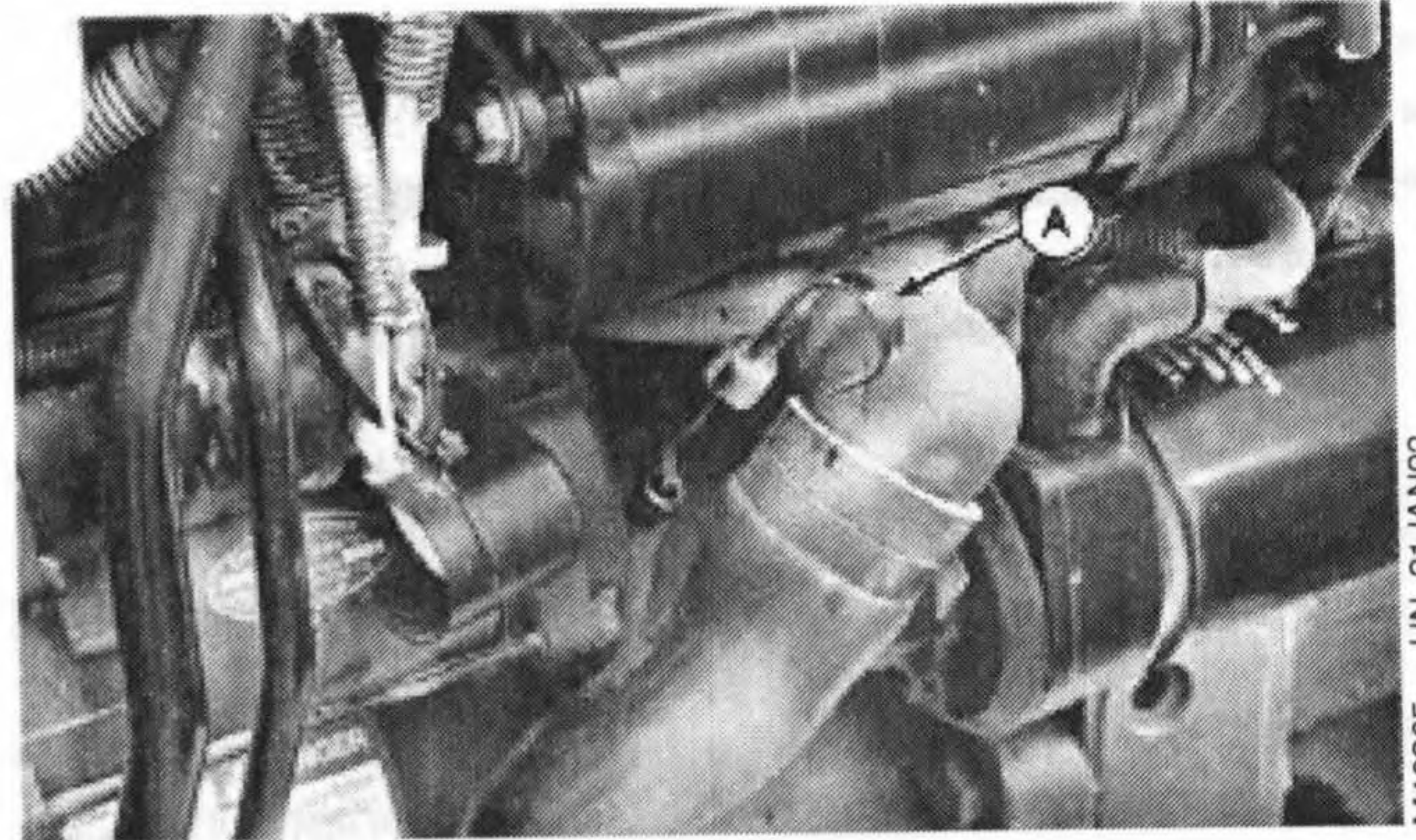
LV,5010LM,B -19-02JUN99-2/2

Service—10 Hours

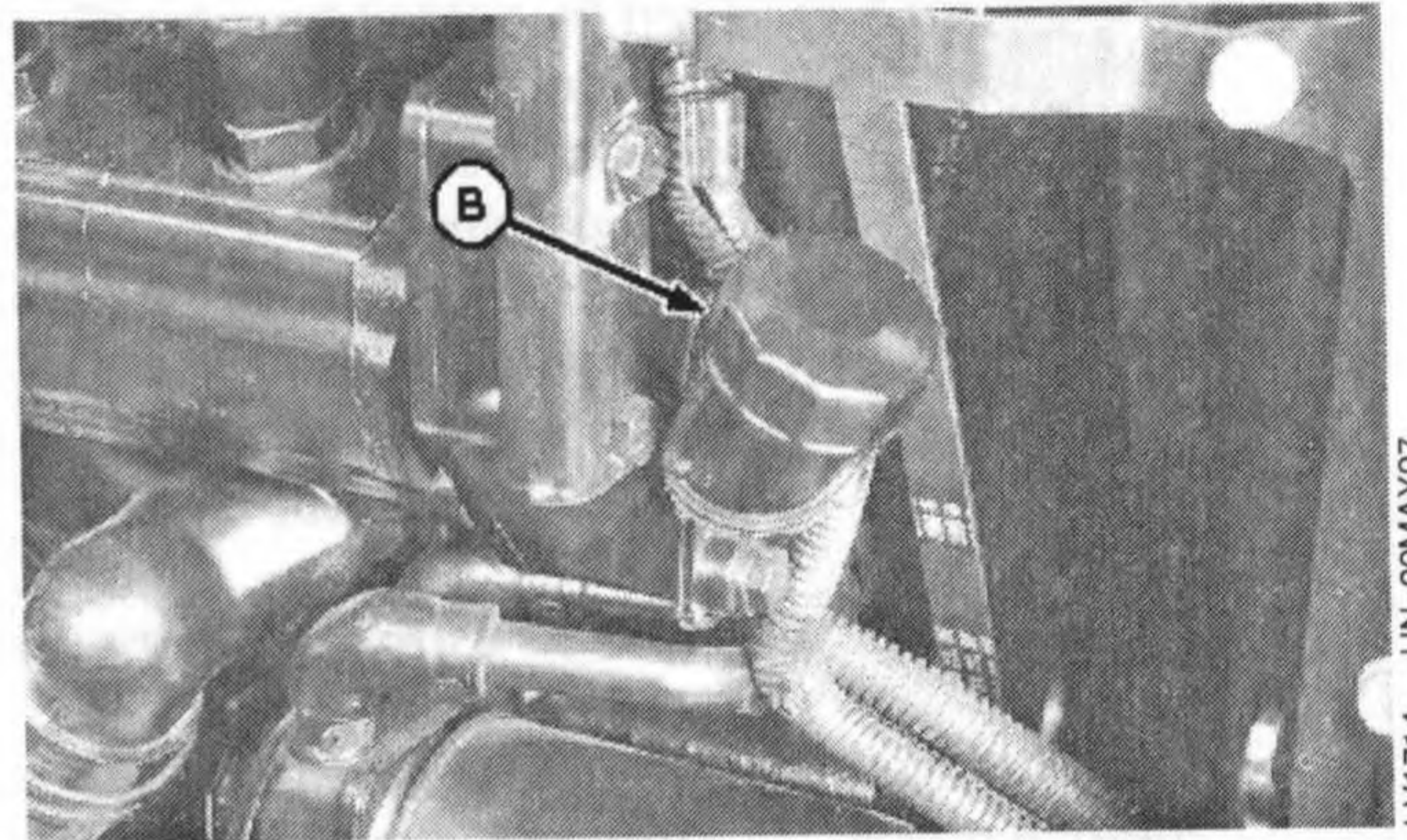
Check Engine Oil Level

1. Park tractor on level ground and pull out dipstick (A). Oil level should be between two marks on dipstick. DO NOT operate engine when oil level is below low mark on dipstick.
2. If level is low, add oil through oil filler hole (B) until even with upper mark. DO NOT over fill. Use seasonal viscosity grade oil. (See Fuels, Lubricants and Coolant section.)

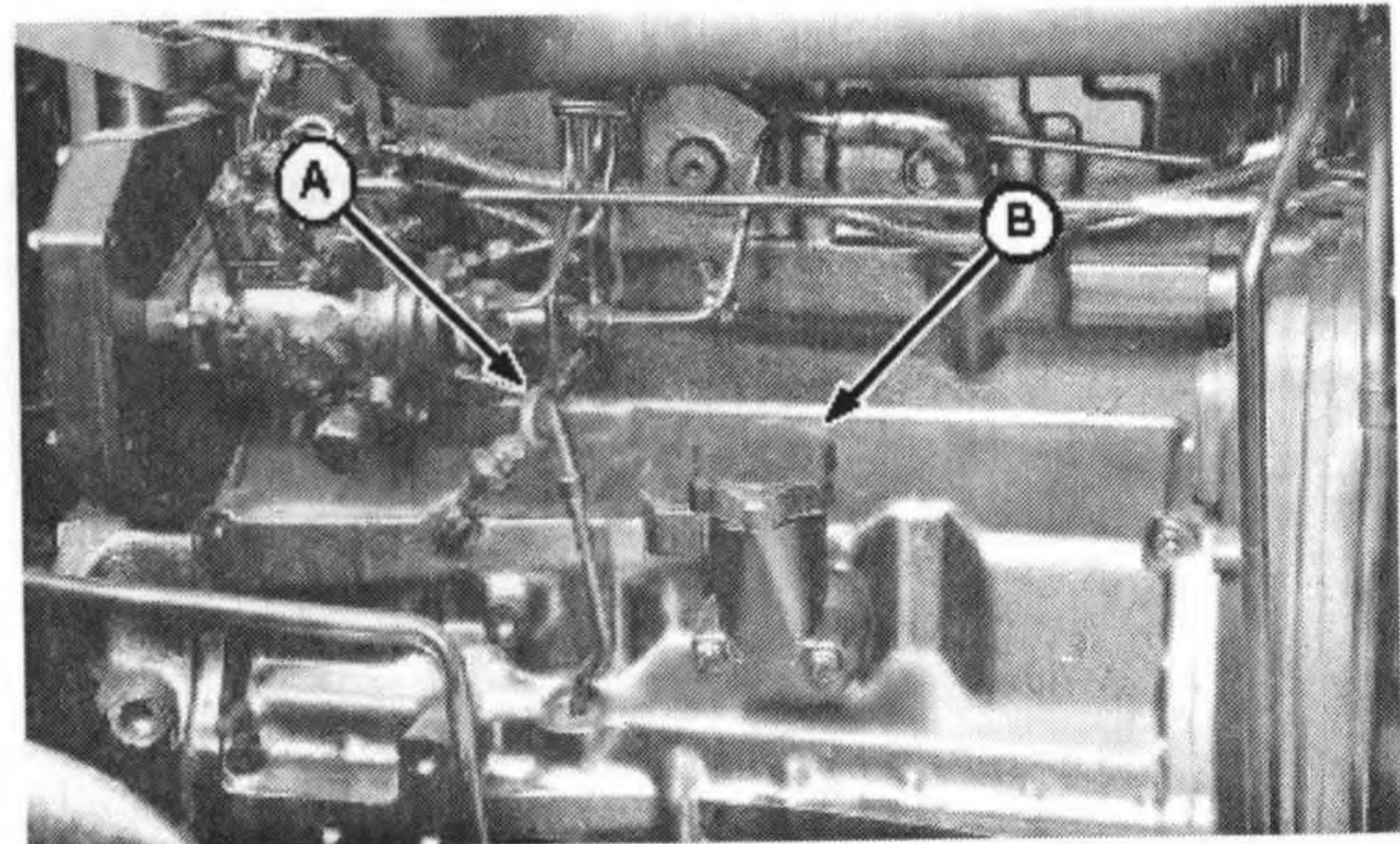
A—Engine Oil Dipstick
B—Engine Oil Filler Hole



Dipstick—5210 and 5310



Filler Cap—5210 and 5310



5410 and 5510

LV,5010S10,A -19-03JUN97-1/1

Check Coolant Level

CAUTION: Only remove radiator cap (A) when engine is cold. Slowly loosen cap to first stop to relieve pressure before removing completely.

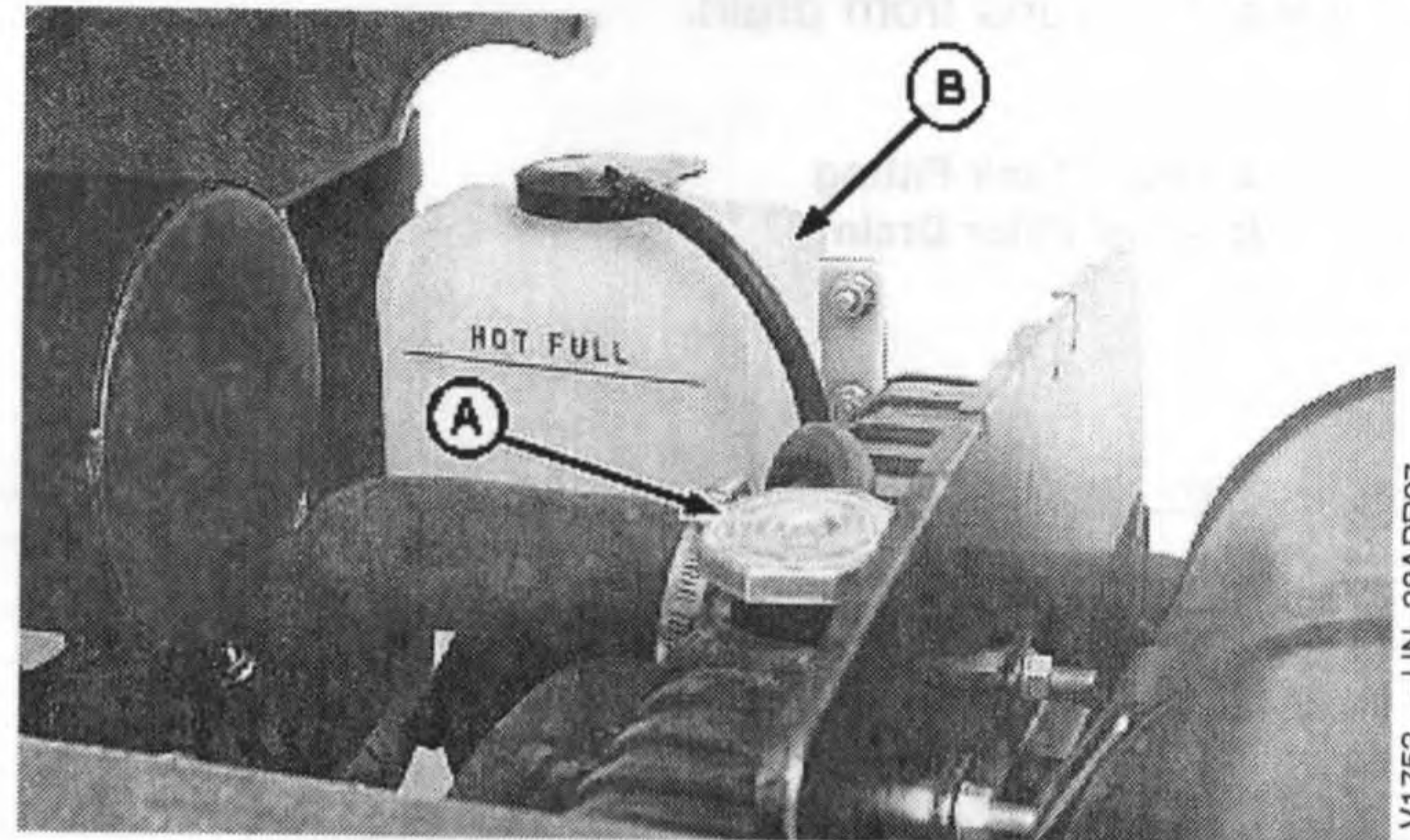
IMPORTANT: Periodically check coolant level in radiator. If cap should become defective, coolant would not be drawn from recovery tank, and could cause the engine to overheat. Replace cap as necessary.

1. Check level in coolant tank (B).
2. If engine is cool and level is below "LOW" add coolant to recovery tank to bring to "LOW". (See Fuels, Lubricants and Coolant section.)

A—Radiator Cap
B—Coolant Tank

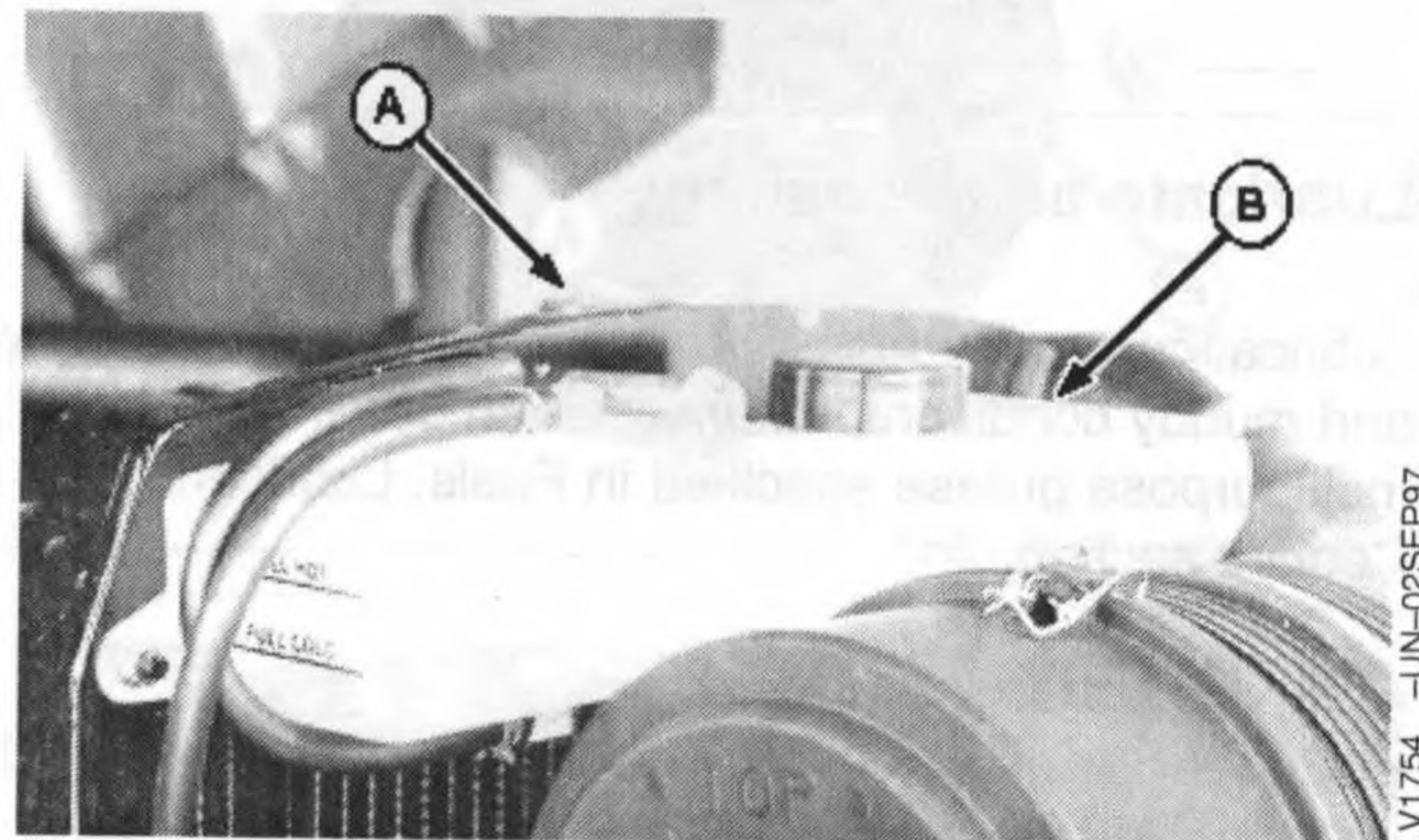


TS281 -UN-23AUG88



5210 and 5310 Shown

LV1753 -UN-28APR97



5410 and 5510 Shown

LV1754 -UN-02SEP97

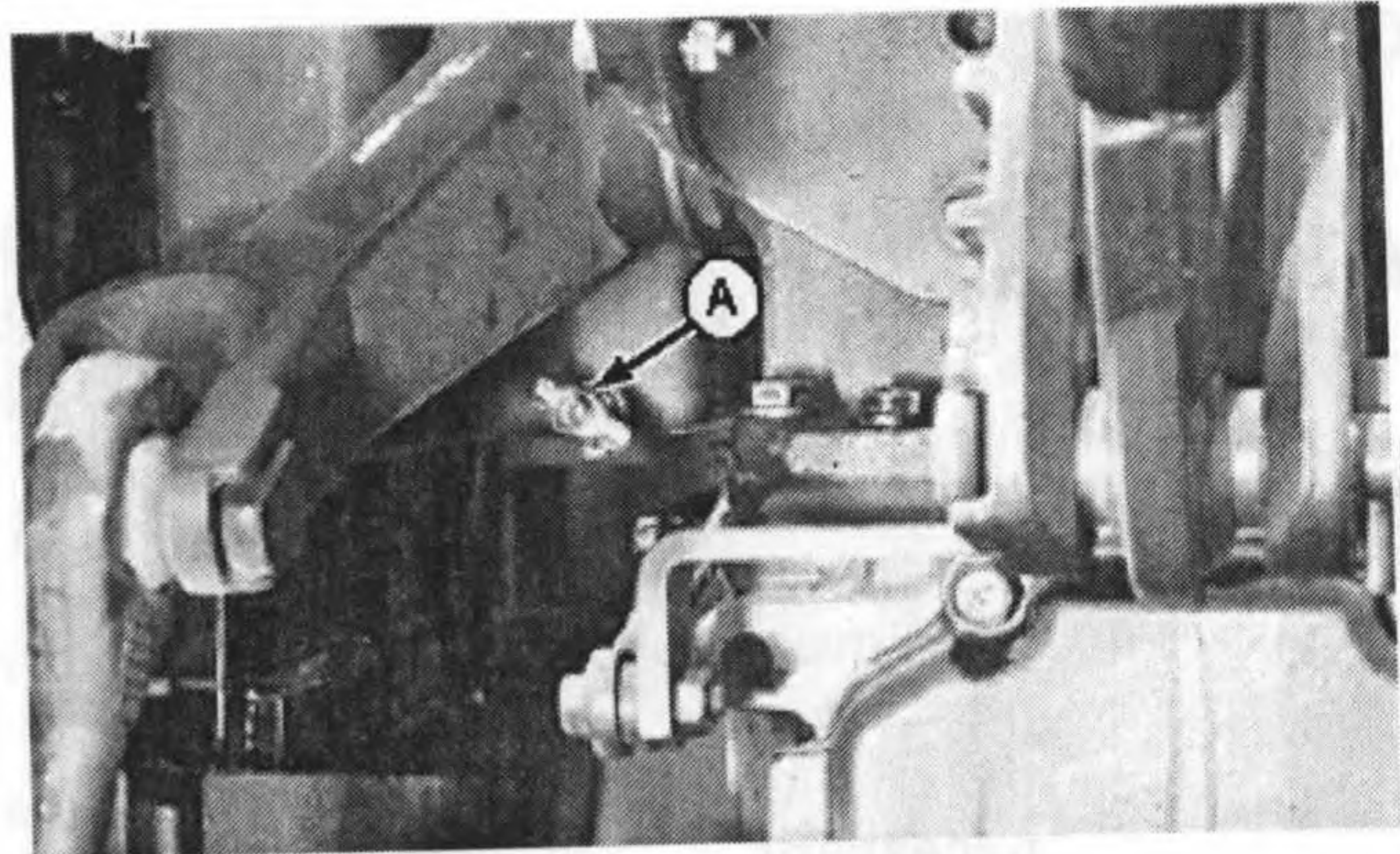
LV,5010S10,B -19-04SEP97-1/1

Drain Water and Sediment From Fuel Tank and Fuel Filter

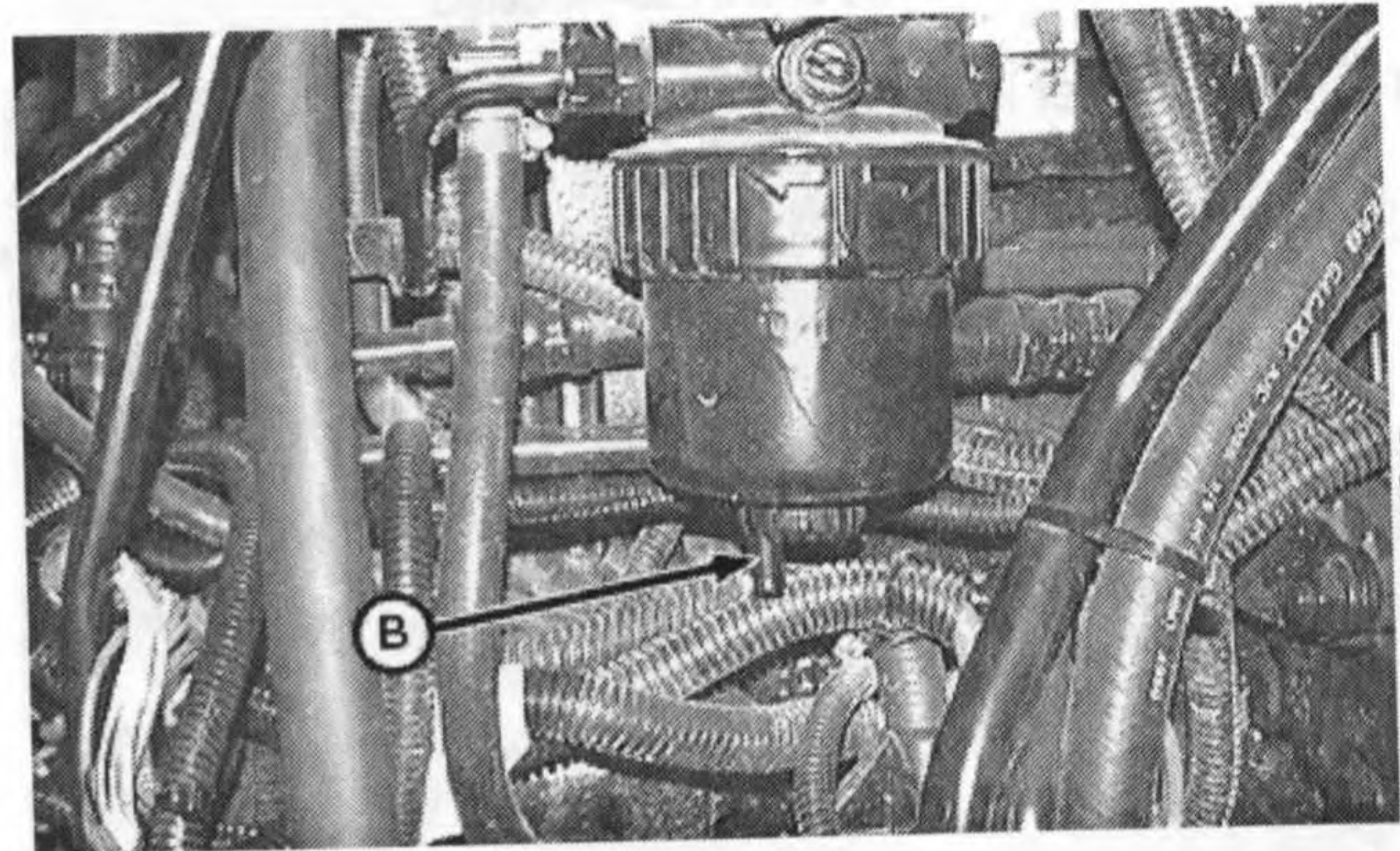
NOTE: Place a small container under drain fitting to catch draining fuel. Dispose of waste properly.

1. Open fuel tank fitting (A) to bleed accumulated moisture and sediment from the fuel tank. Tighten fitting closed when clear fuel runs from fitting.
2. Open fuel filter drain (B) to bleed accumulated moisture and sediment from filter. Tighten drain when clear fuel runs from drain.

A—Fuel Tank Fitting
B—Fuel Filter Drain



LV1950 -UN-23APR97



LV3033 -UN-17AUG99

LV,5010S10,C -19-10AUG99-1/1

Lubricate as Necessary

Lubrication required only when operating in extremely wet and muddy conditions. Lubricate with several shots of multipurpose grease specified in Fuels, Lubricants and Coolant section.

- Tie rod ends
- Steering spindles (MFWD and Adjustable Front Axle)
(See Service—50 Hours)
- Front axle pivot pin(s) (See Service—50 Hours)
- Rear axle bearings (See Service—600 Hours)

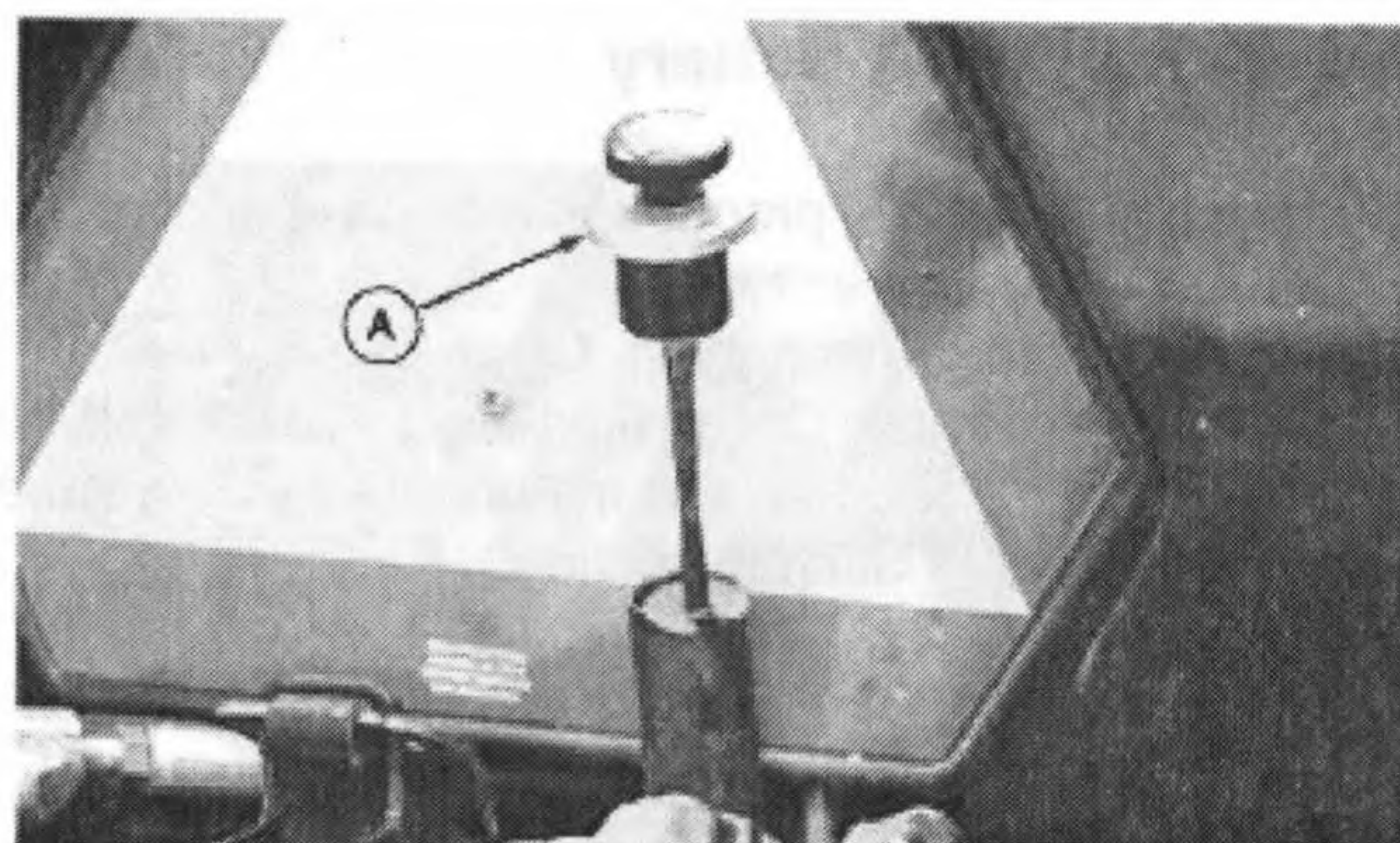
LV,5010S10,D -19-21MAY99-1/1

Service—50 Hours

Check Transmission-Hydraulic System Oil Level

1. Remove dipstick (A) and wipe it clean. Insert dipstick fully. Oil level should be between full mark and end of dipstick.
2. Add oil if level is low. (See Anti-Chatter Transmission/Hydraulic Oil in Fuels, Lubricants and Coolant section.)

A—Transmission-Hydraulic Oil Dipstick



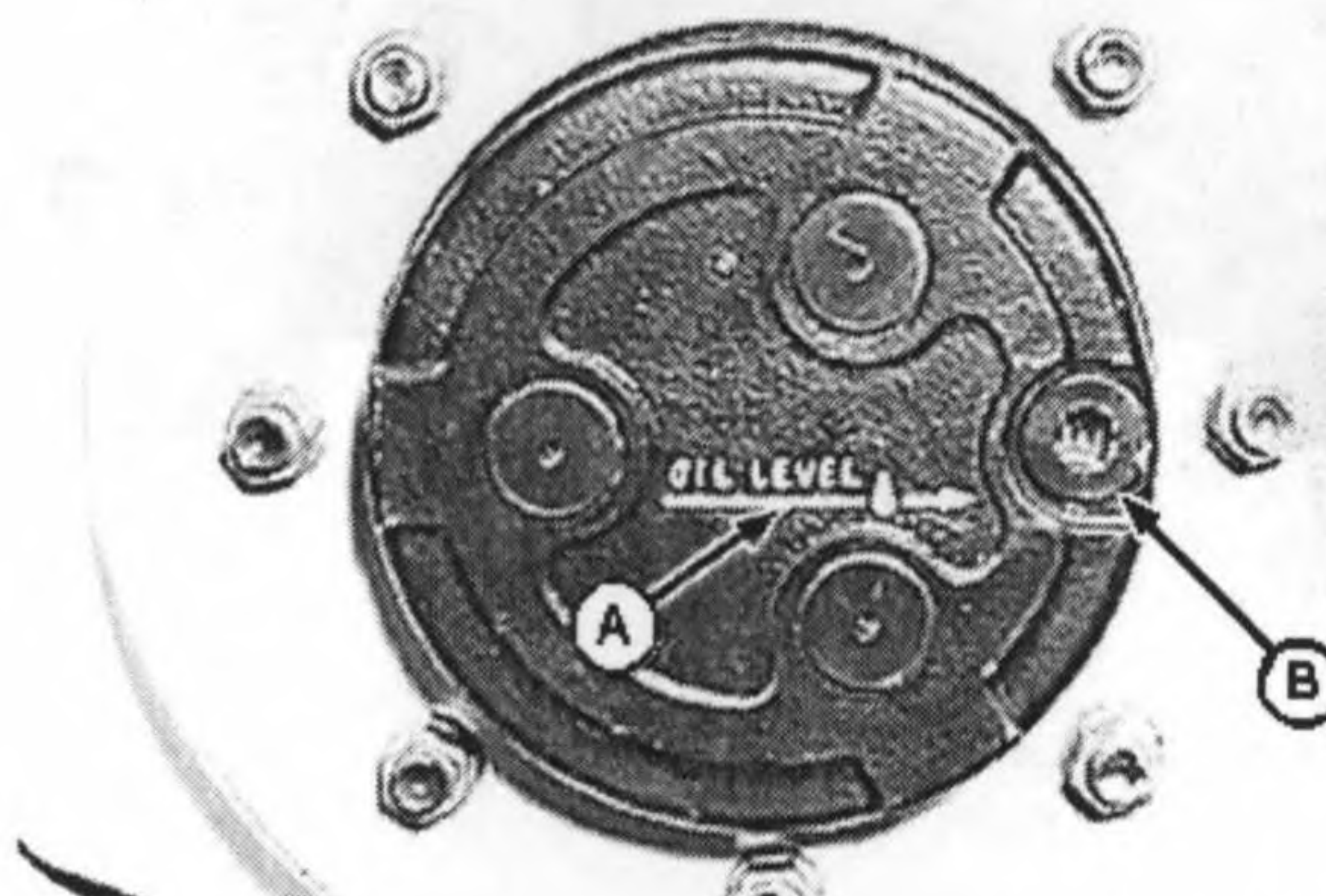
M46967 -UN-31JAN92

MX,LMIP,HA3 -19-10JAN96-1/1

Check MFWD Axle Oil Level

1. Park tractor so that oil fill mark (A) on MFWD hub is level with the ground. Remove filler plug (B). Oil level should be even with bottom of the filler plug hole.

A—MFWD Oil Fill Mark
B—MFWD Oil Fill Plug

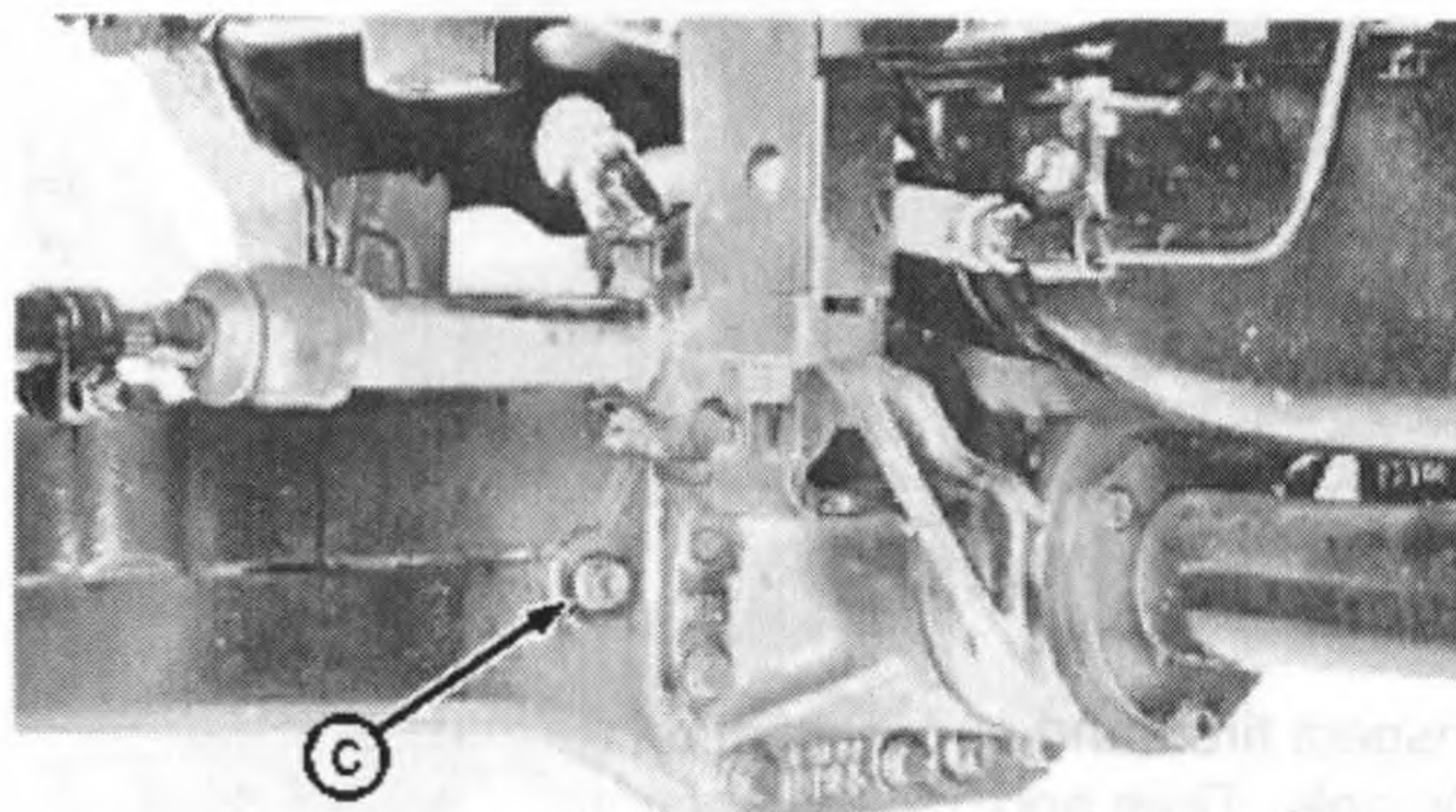


LV1941 -UN-23APR97

LV,5010S50,A -19-03JUN97-1/2

2. Remove plug (C) to check oil level in axle housing. Oil level should be even with bottom of hole.
3. If level is low, add John Deere GL5 Gear Lubricant or its equivalent. (See Fuels, Lubricants and Coolant section.)

C—Oil Level Check Plug



LV1942 -UN-23APR97

LV,5010S50,A -19-03JUN97-2/2

Clean and Check Battery

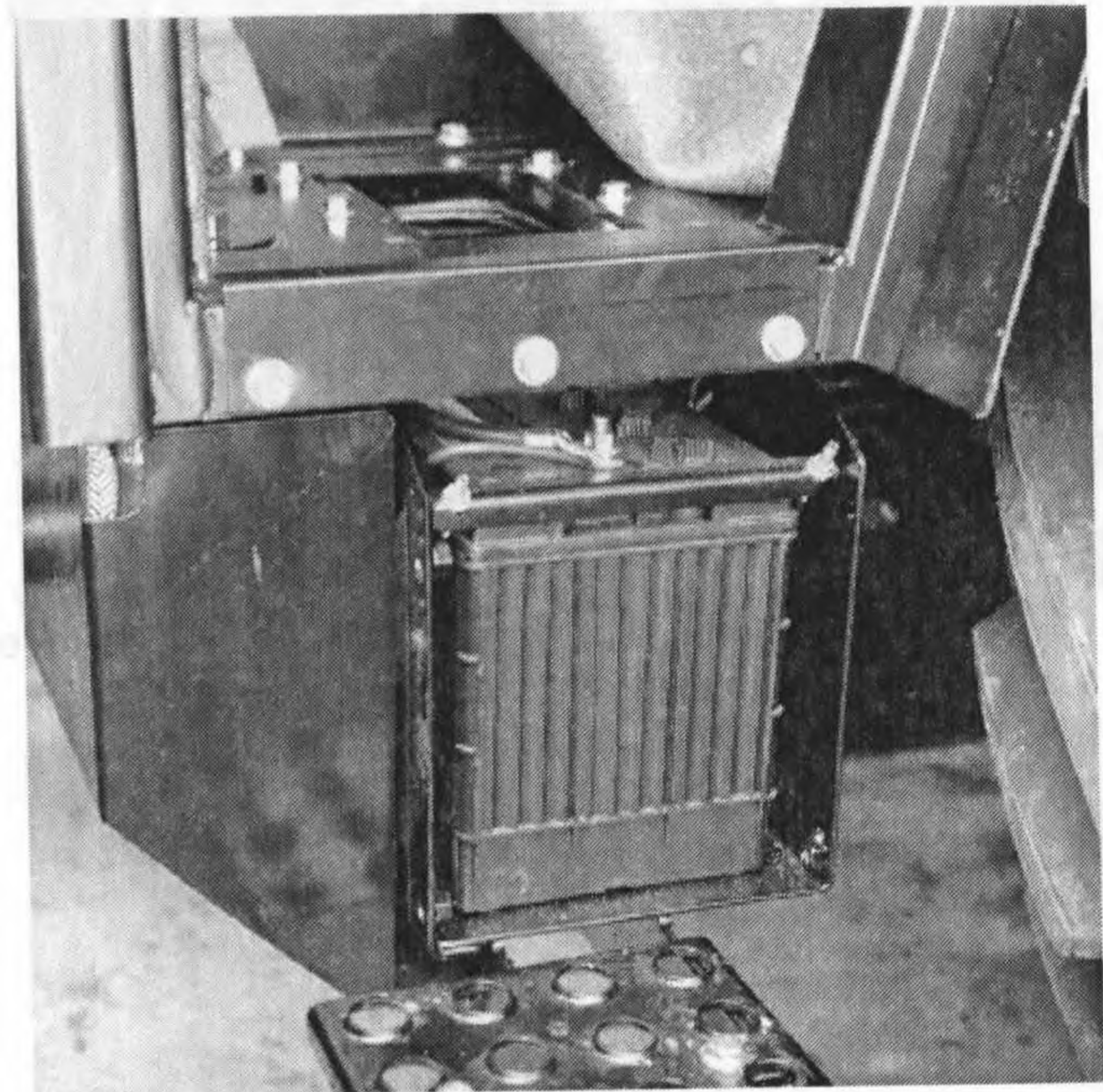
To access battery, see procedure in Service section.

Wipe battery with a damp cloth. Clean and tighten connections if needed. Check fluid level in each cell, fill to bottom of filler neck with clean mineral-free water. (See Servicing Battery in Service section.)



LV1767 -UN-22APR97

Open Station (In Front of Radiator)



LV2000 -UN-08SEP97

Cab (Under Cab, Left-Hand Side)

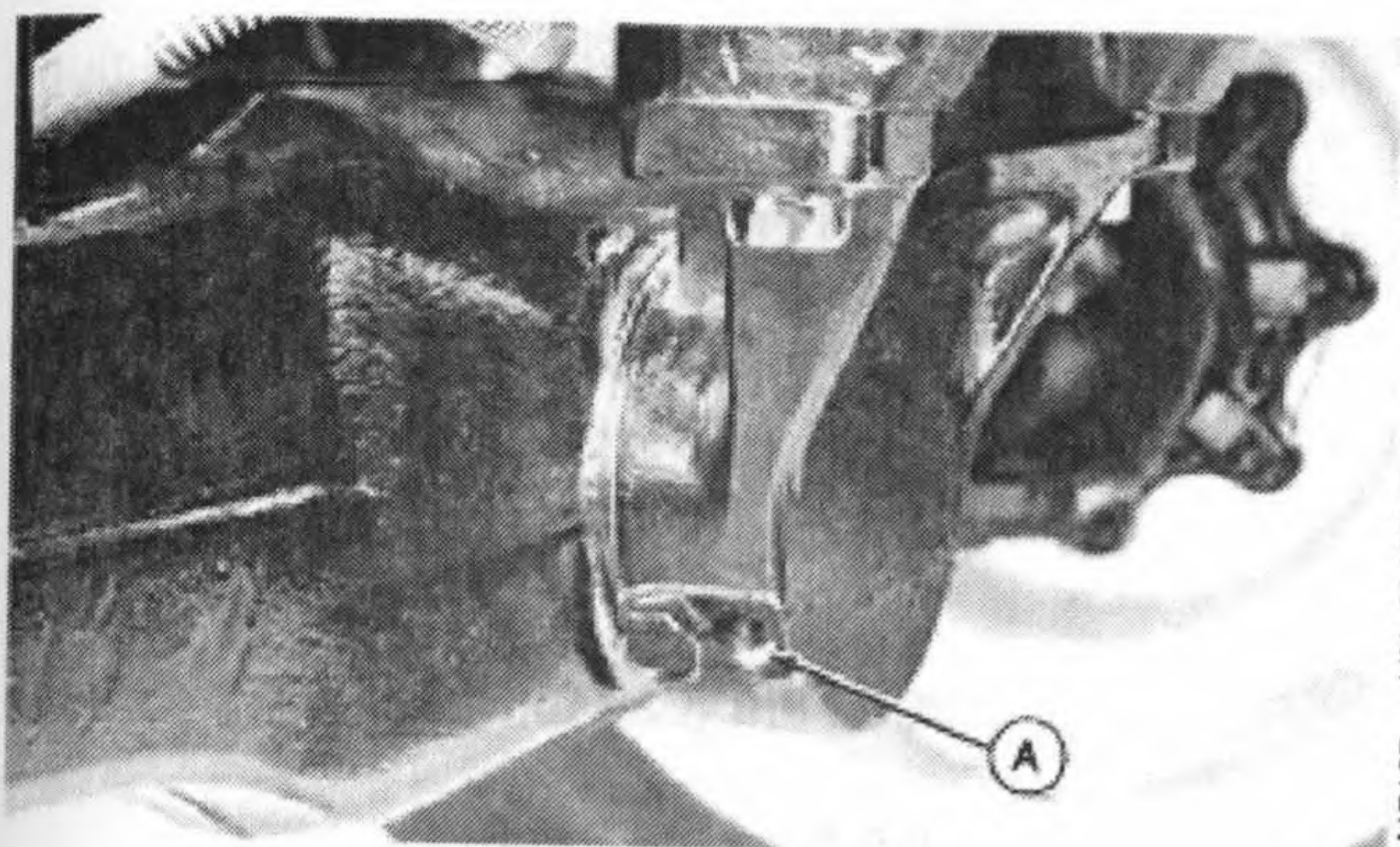
LV,5010S50,B -19-09SEP97-1/1

Inspect All Tires

Inspect tires and check inflation pressures. (See Wheels, Tires and Treads section.)

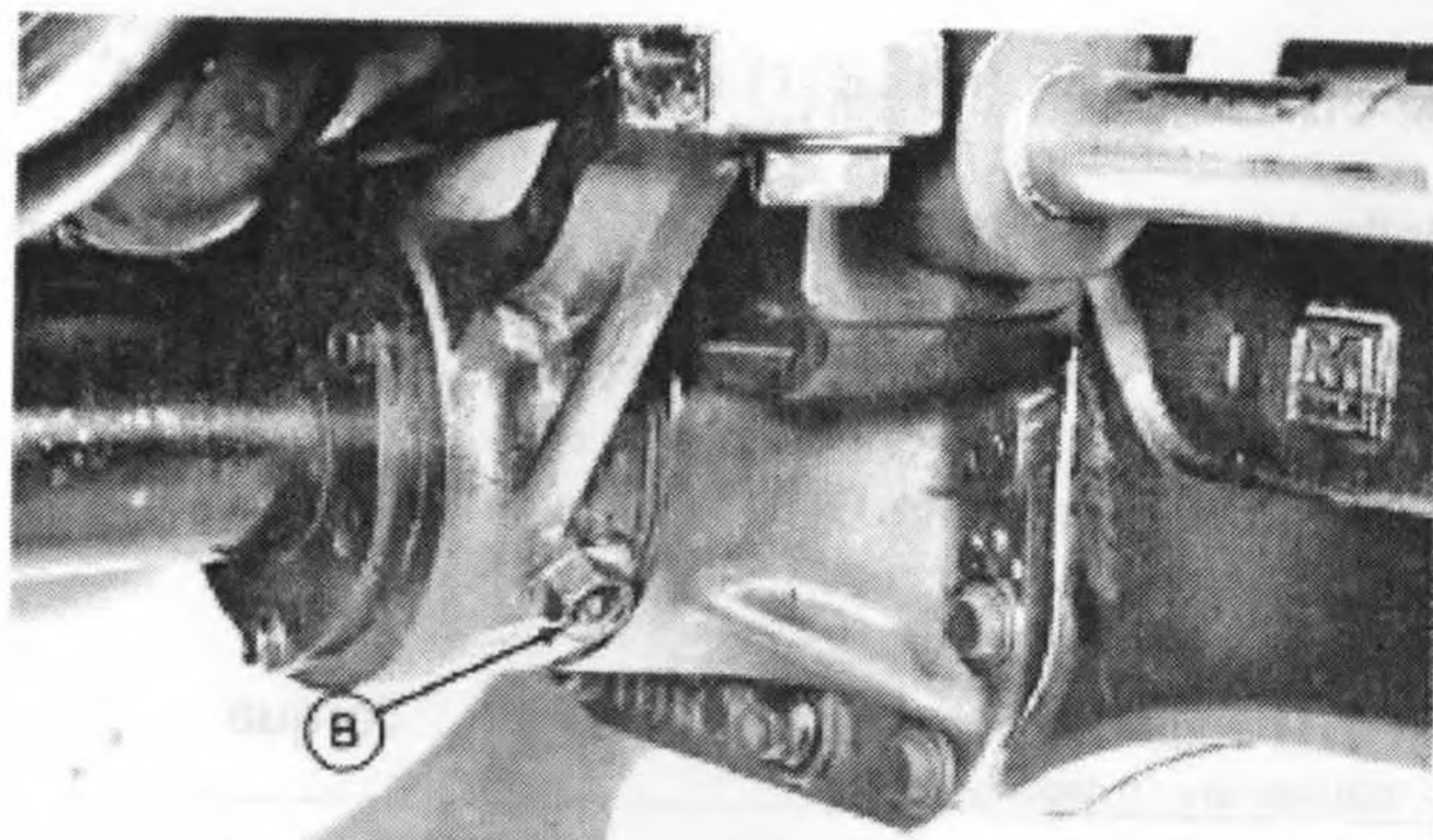
LV,5010S50,C -19-29AUG97-1/1

Lubricate Front Axle Pivot Pin(s)



MFWD Axle—Front

M47187 -UN-31JAN92

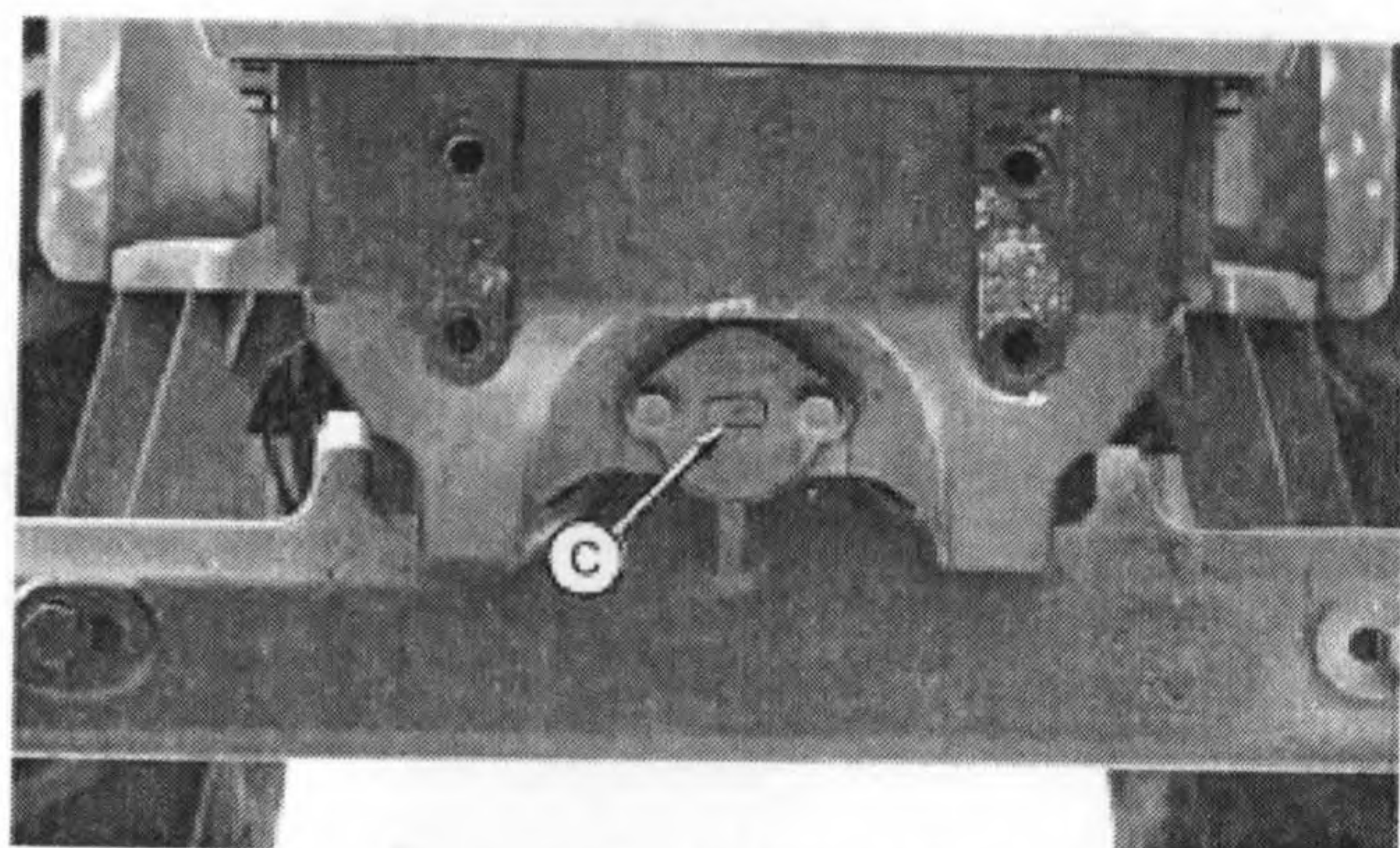


MFWD Axle—Rear

M47188 -UN-31JAN92

Lubricate MFWD front pivot (A) and rear pivot (B) with several shots of multipurpose grease. Adjustable axle pivot pin (C) also requires lubrication of the front and rear pivot bushing zerks with multipurpose grease. (See Fuels, Lubricants and Coolant section).

- A—MFWD Front Pivot Zerk
- B—MFWD Rear Pivot Zerk
- C—Adjustable Axle Pivot Pin



Adjustable Front Axle

M46971 -UN-31JAN92

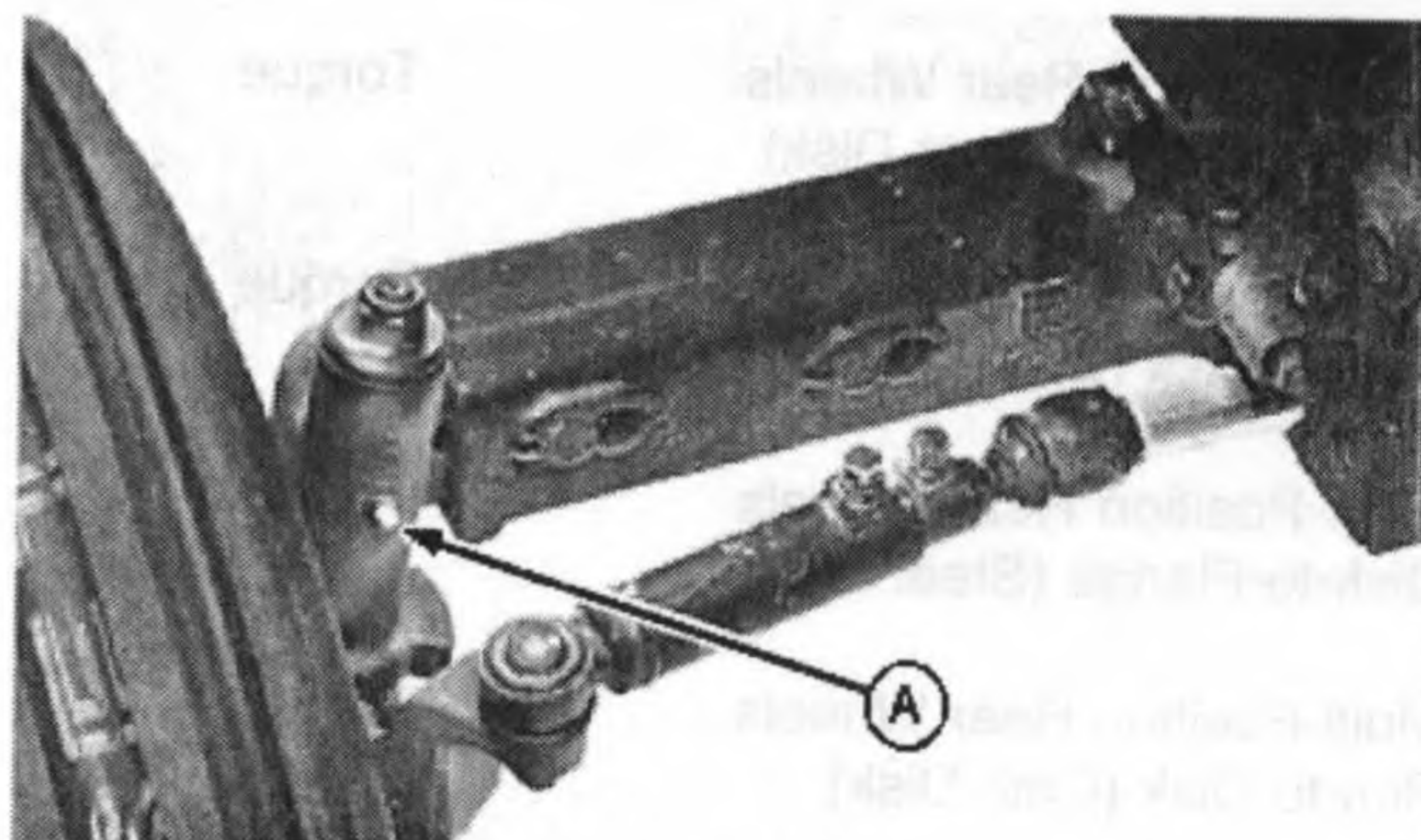
MX,LMIP,KA3 -19-20JAN96-1/1

Lubricate Steering Spindles

On tractors equipped with mechanical front wheel drive (MFWD) axle, apply several shots of general purpose grease (See Fuels, Lubricants and Coolant section) to upper and lower steering spindle fittings.

On tractors equipped with adjustable front axle, apply several shots of general purpose grease (See Fuels, Lubricants and Coolant section) to steering spindle fitting (A).

- A—Spindle Fitting Zerk



Adjustable Front Axle Shown

LV1976 -UN-28AUG97

LV,5010S50,E -19-29AUG97-1/1

Inspect Tractor for Loose Hardware

Item	Measurement	Specification
Ballast Weights Retaining Bolts	Torque	230 N•m (170 lb-ft)
Adjustable Front Axle-to-Knee Bolts	Torque	480 N•m (350 lb-ft)
Adjustable Front Axle Disk-to-Flange Bolts	Torque	175 N•m (130 lb-ft)
MFWD Axle Disk-to-Flange Bolts	Torque	300 N•m (220 lb-ft)
MFWD Axle Rim-to-Disk Bolts	Torque	245 N•m (180 lb-ft)
Rear Axle Rim-to-Disk (Steel Disk) Bolts	Torque	245 N•m (180 lb-ft)
Rear Axle Disk-to-Flange (Steel Disk) Bolts	Torque	175 N•m (130 lb-ft)
Rear Axle Rim-to-Disk (Cast Disk) Bolts	Torque	215 N•m (160 lb-ft)
Rear Axle Disk-to-Flange (Cast Disk) Bolts	Torque	225 N•m (165 lb-ft)
Multi-Position Rear Wheels Rim-to-Disk (Steel Disk)	Torque	245 N•m (180 lb-ft)
Multi-Position Rear Wheels Disk-to-Flange (Steel Disk)	Torque	175 N•m (130 lb-ft)
Multi-Position Rear Wheels Rim-to-Disk (Cast Disk)	Torque	215 N•m (160 lb-ft)
Multi-Position Rear Wheels Disk-to-Flange (Cast Disk)	Torque	225 N•m (165 lb-ft)
Multi-Position Rear Wheels Rim-to-Disk (Steel Disk)	Torque	245 N•m (180 lb-ft)
Multi-Position Rear Wheels Disk-to-Flange (Steel Disk)	Torque	175 N•m (130 lb-ft)
Multi-Position Rear Wheels Rim-to-Disk (Cast Disk)	Torque	215 N•m (160 lb-ft)

Continued on next page

LV 5010S50.D -19-29AUG97-1/2

Service—50 Hours

Item	Measurement	Specification
Multi-Position Rear Wheels Disk-to-Flange (Cast Disk)	Torque	225 N•m (165 lb-ft)
Front Axle Bolts	Torque	480 N•m (350 lb-ft)
ROPS Mounting Bolts	Torque	335 N•m (250 lb-ft)

LV,5010S50,D -19-29AUG97-2/2

Service—100 Hours

Change Engine Oil and Filter

NOTE: Change oil and filter a minimum of once a year.

1. Run engine to heat oil. Stop engine.

NOTE: The approximate engine crankcase oil capacity is 8.5 L (9 qt).

2. Remove oil drain plug (A) and drain oil.
3. Replace engine oil filter (B) while changing oil. Apply a film of oil on the new oil filter gasket and install new filter. Hand tighten plus 1/2 turn.
4. Install drain plug.

IMPORTANT: Change engine oil every 125 hours if diesel fuel has a sulfur content greater than 0.7 percent.

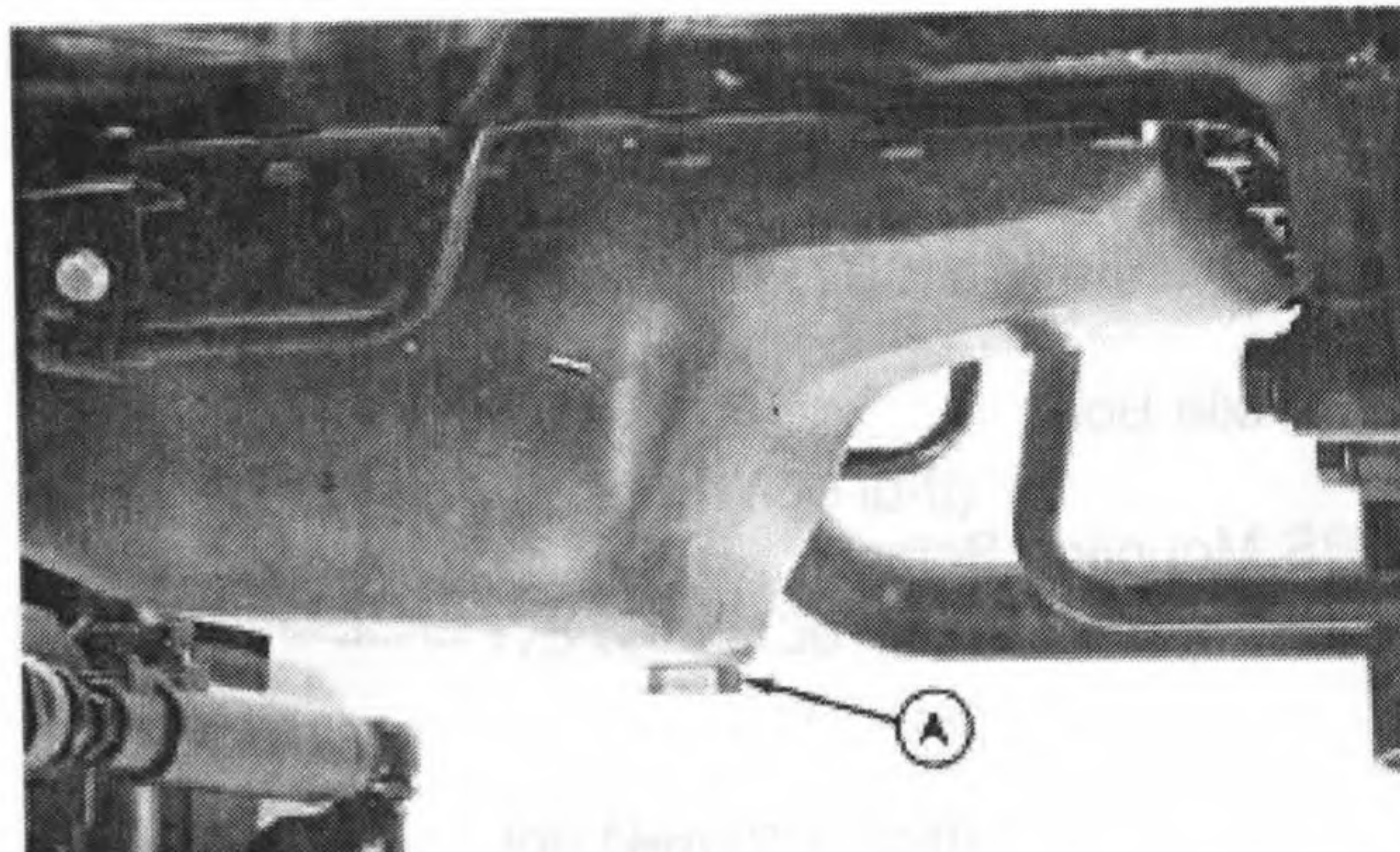
5. Add seasonal viscosity grade oil. (See Fuels, Lubricants and Coolant section.)

Specification

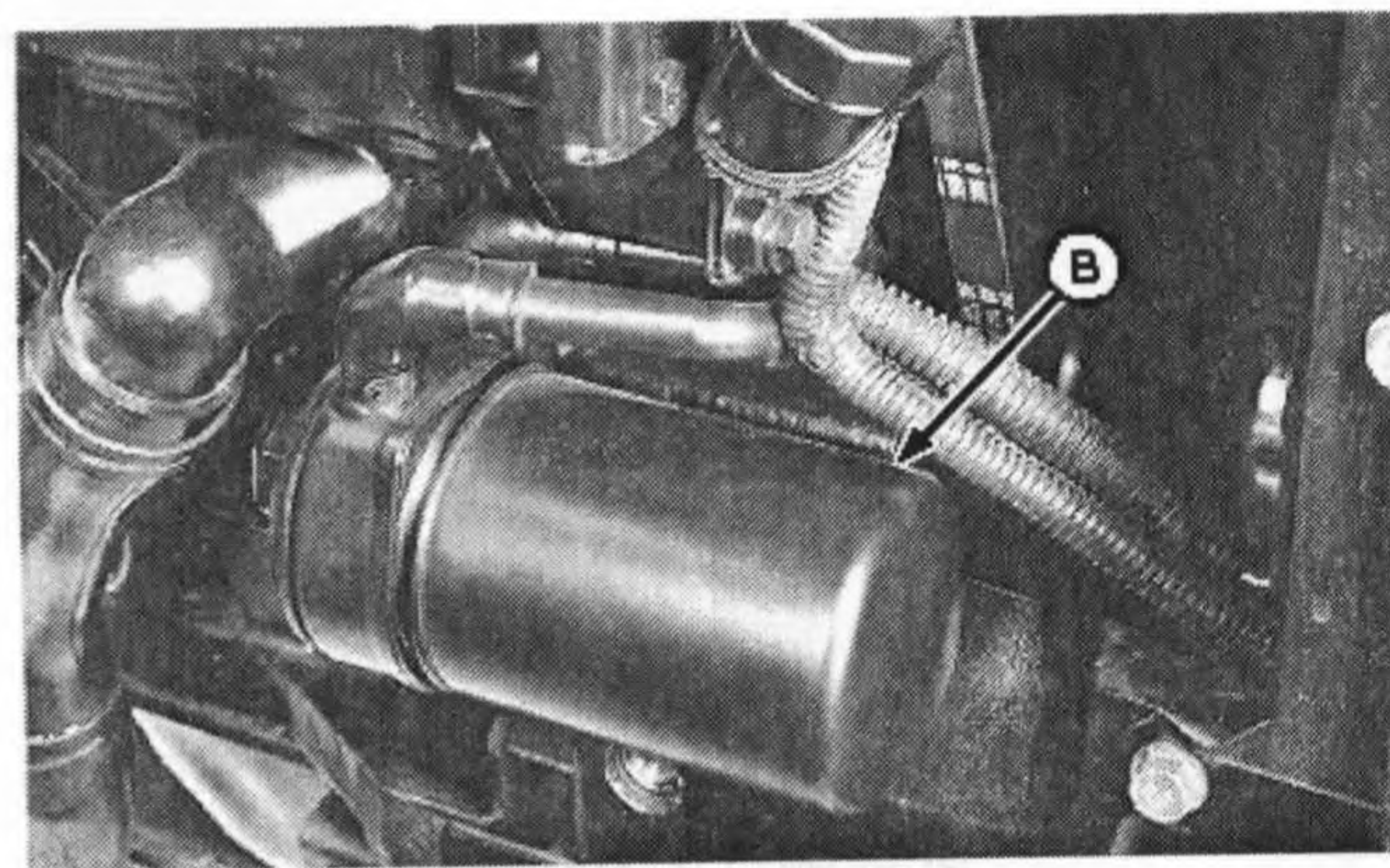
Engine Crankcase Oil Capacity 8.5 L (9 qt)

NOTE: Engine oil should be changed annually as a minimum.

A—Engine Oil Drain Plug
B—Engine Oil Filter

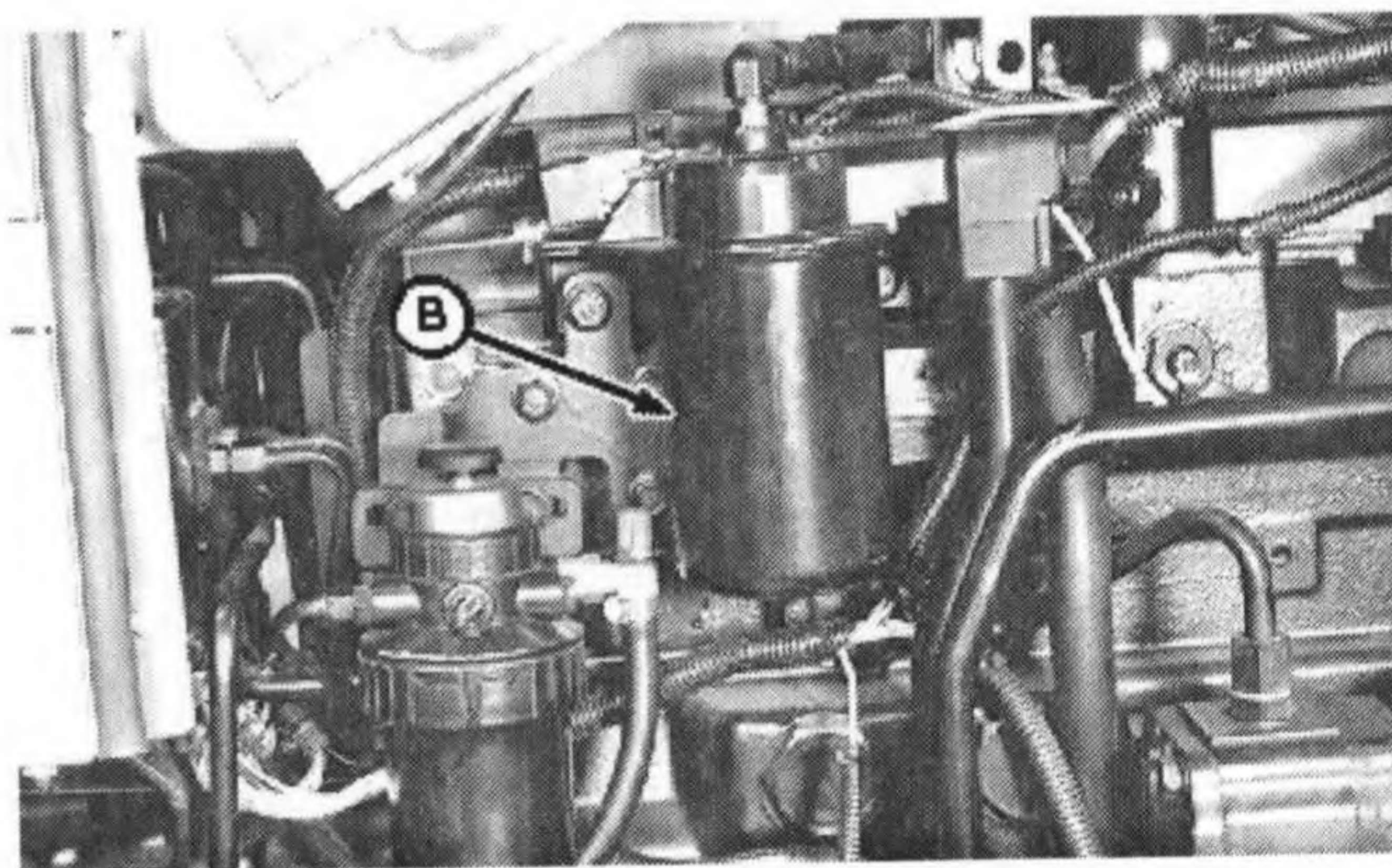


M46973 -UN-31JAN92



LV1924 -UN-08SEP97

5210 and 5310 Shown



LV1755 -UN-29MAY97

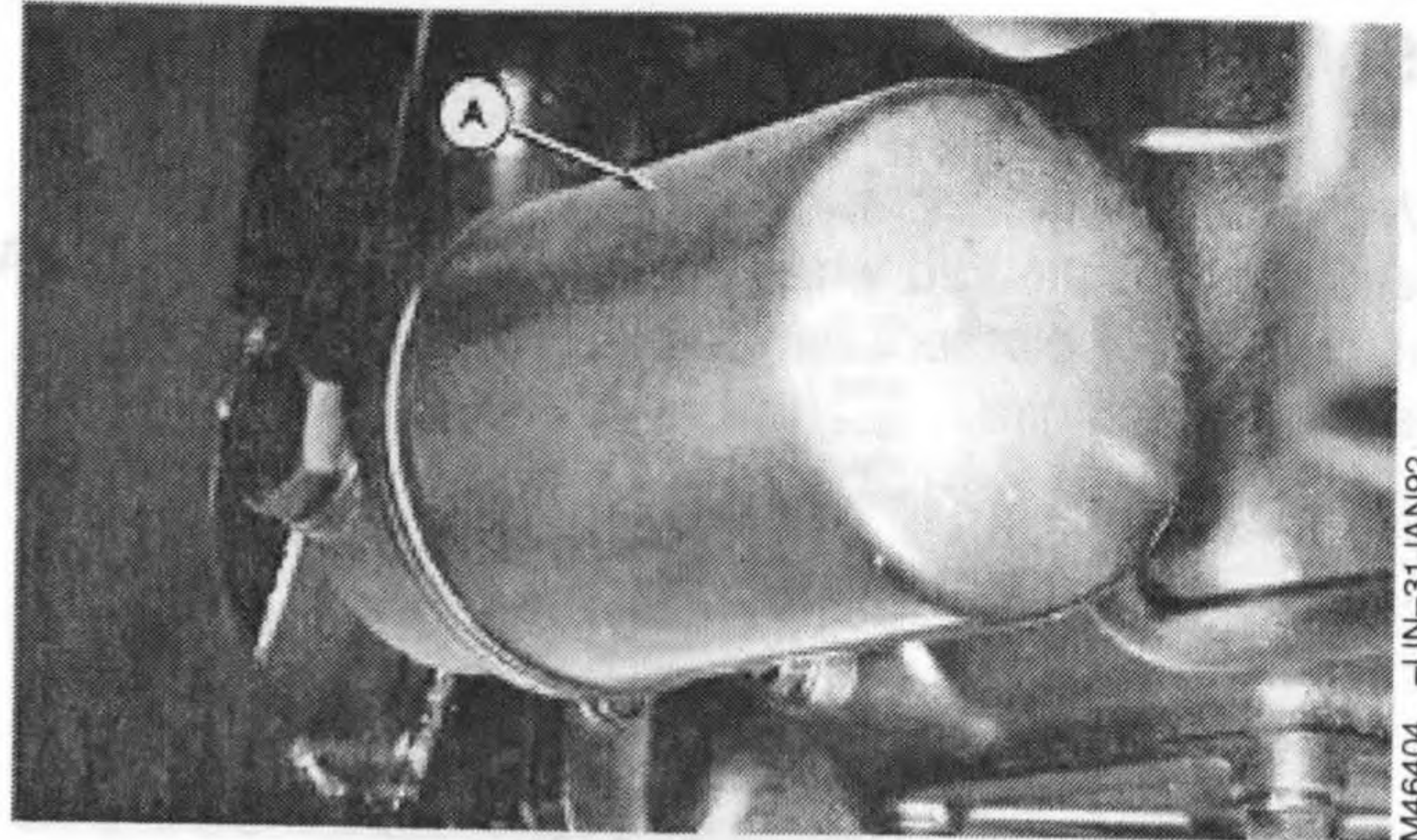
5410 and 5510 Shown

LV,5010S100,A -19-21MAY99-1/1

Replace Transmission-Hydraulic Filter

1. Remove filter (A). Apply a film of oil to new gasket and install new filter. Hand tighten plus 1/2 turn.
2. Run engine several seconds and recheck transmission-hydraulic oil level.
3. Add transmission fluid if required (See Fuels, Lubricants and Coolant section).

A—Transmission-Hydraulic Oil Filter



M46404 -JUN-31JAN92

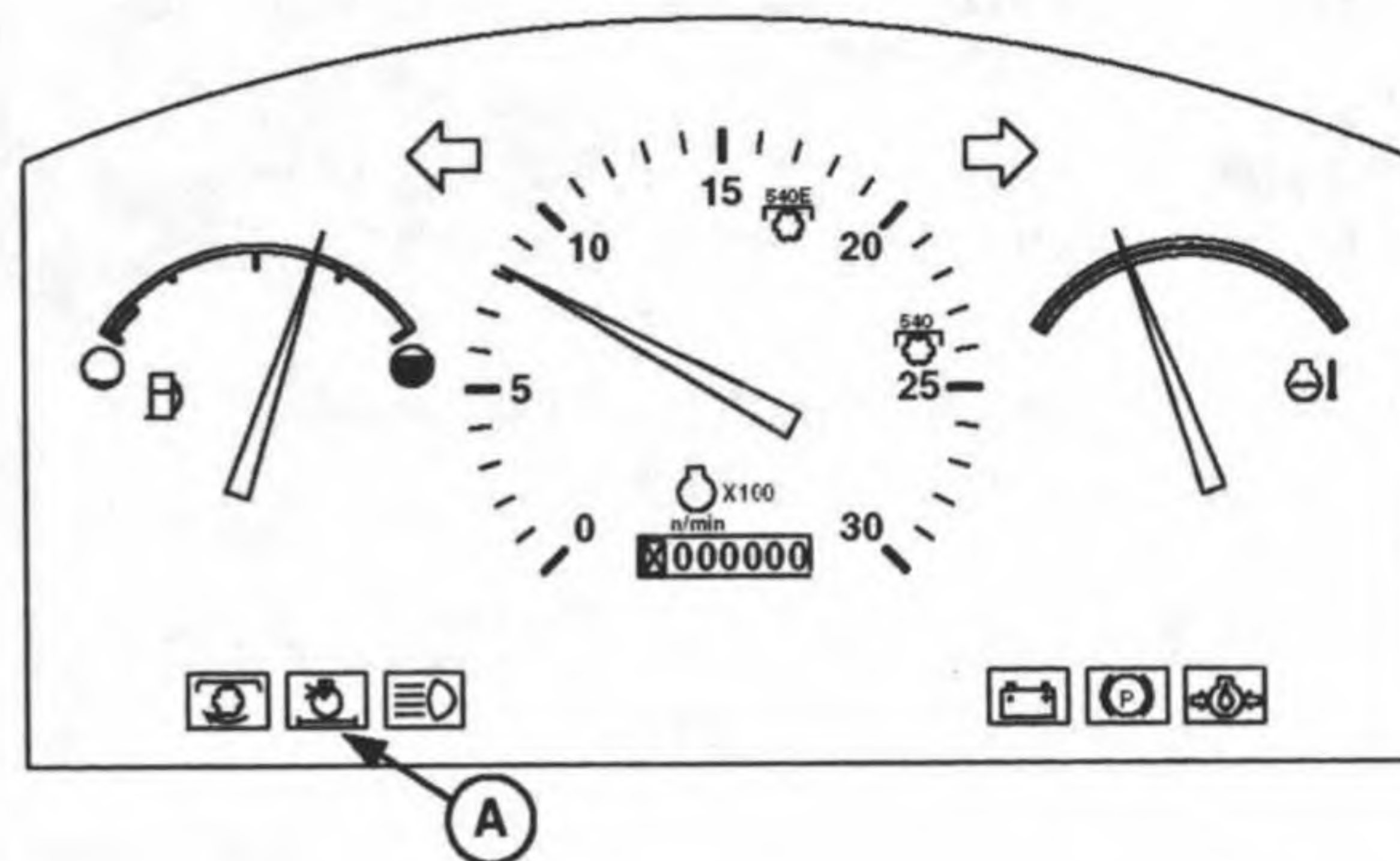
MX,LMIP,PA3 -19-10JAN96-1/1

Service—250 Hours

Service Air Cleaner

A dual element air cleaner is standard. A dirty primary element is indicated when the air restriction indicator (A) is on. A dirty element can result in loss of power or excessive smoke.

A—Air Restriction Indicator



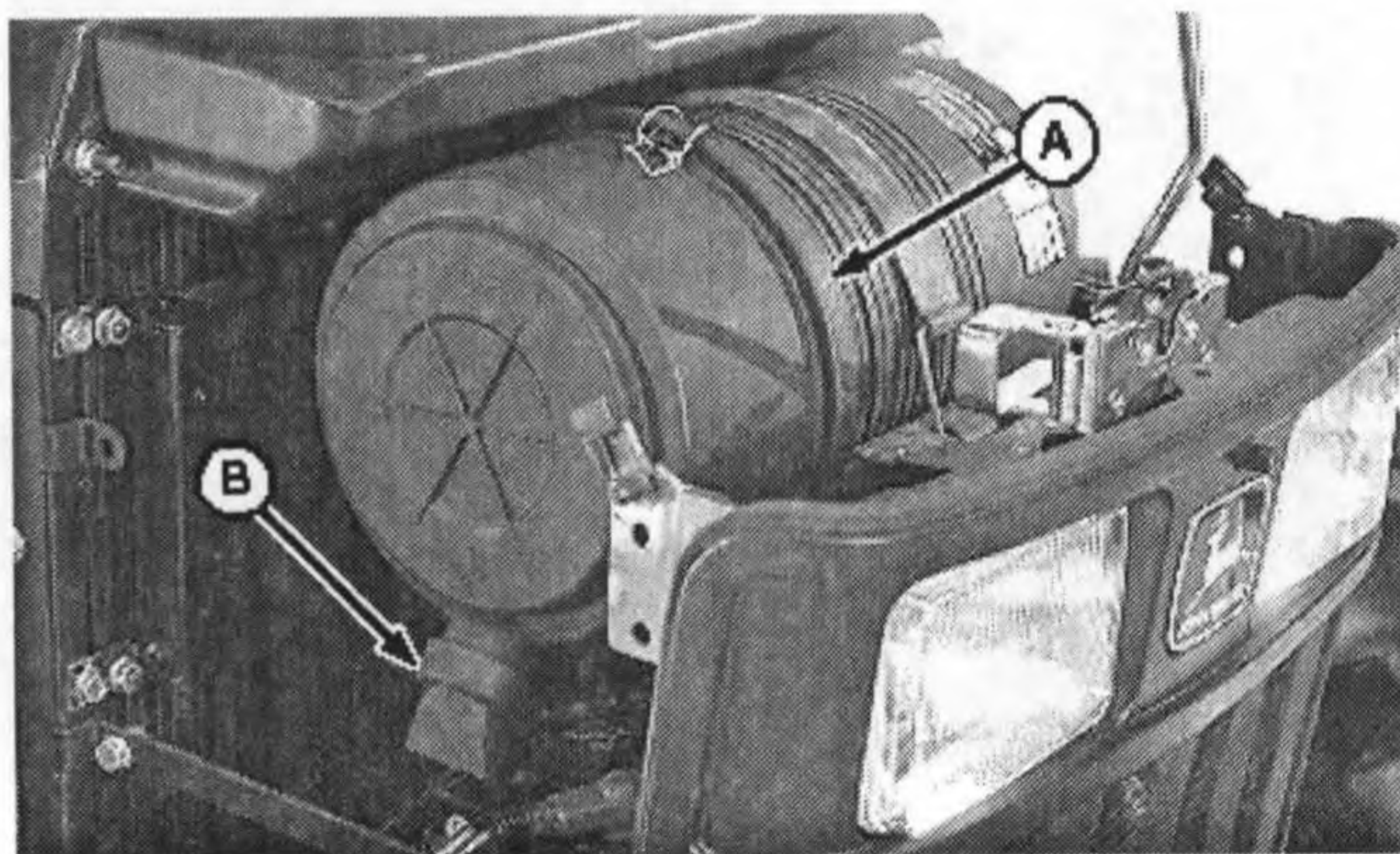
LV,5010S250,A -19-04JUN99-1/3

LV1766 -UN-30MAY97

IMPORTANT: Check unloader valve (B) frequently. Empty as often as needed to keep it from filling with dust. If valve is allowed to fill with dust, air cleaner element will plug rapidly.

Service air cleaner (A) when indicator light illuminates, every 250 hours, or at least once a year.

A—Air Cleaner
B—Dust Unloader Valve



5410 and 5510 Shown

LV1952 -UN-29MAY97

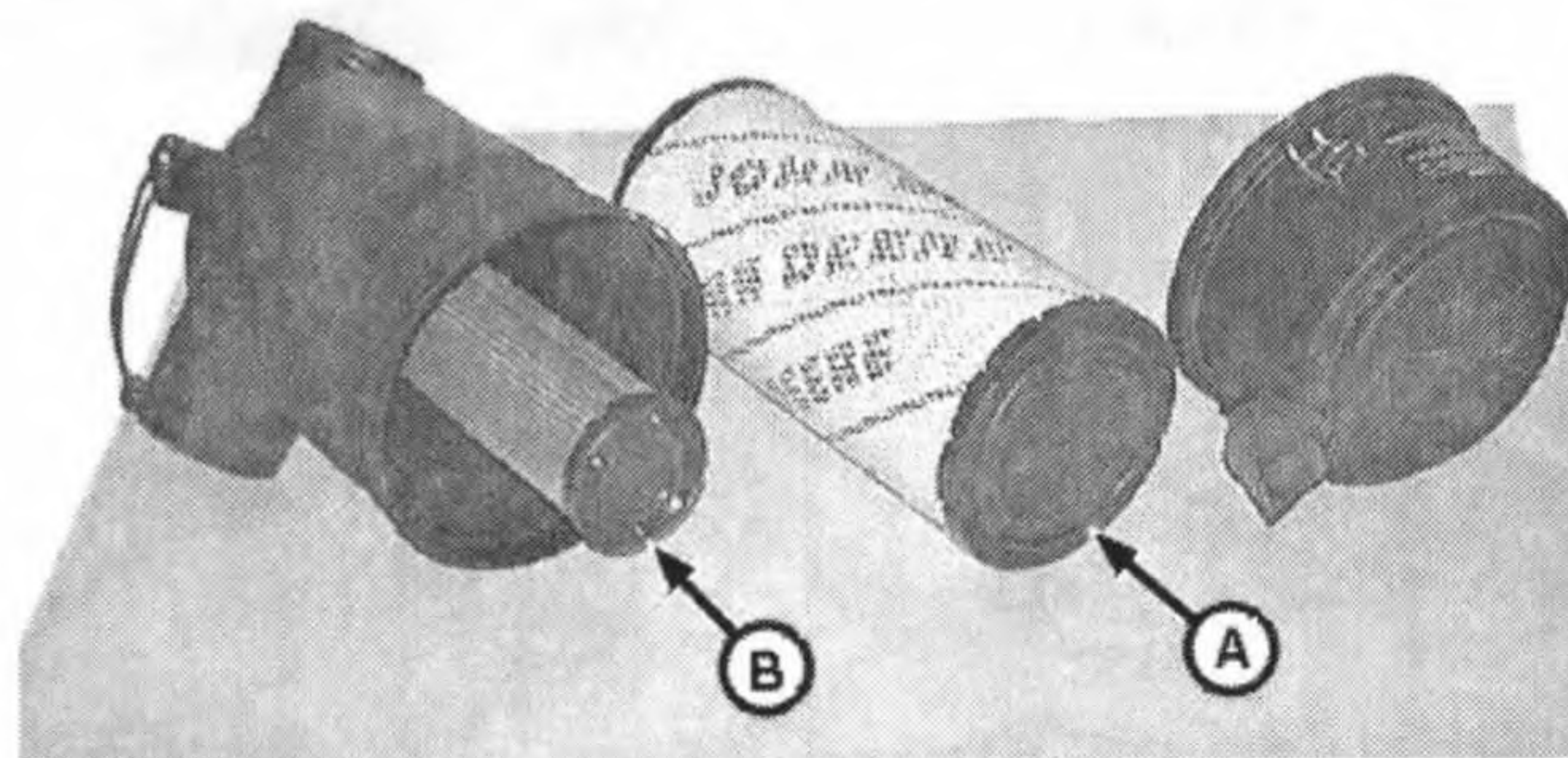
LV,5010S250,A -19-04JUN99-2/3

Replace primary element (A) at least one a year.

The secondary element (B) should be removed only when being replaced, normally once a year.

See procedure in Removing Air Cleaner Elements in Service section.

A—Primary Element
B—Secondary Element



LV3025 -UN-17AUG99

LV,5010S250,A -19-04JUN99-3/3

Inspect and Adjust Alternator/Fan Belt (5210 and 5310)

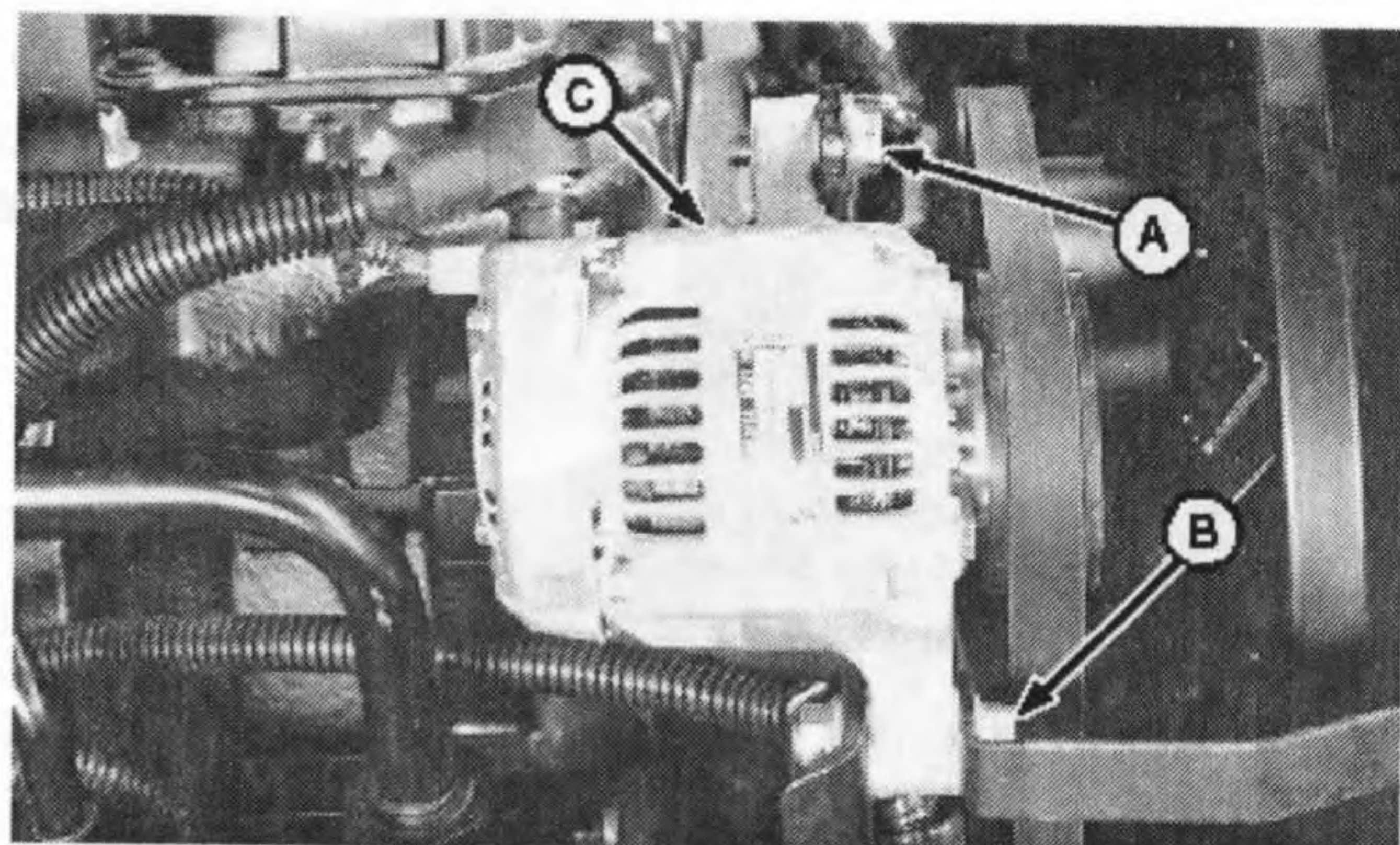
Replace if worn or damaged. (See procedure in Service section.)

NOTE: Run engine for five minutes to warm a cold belt. Let a hot belt cool for 15 minutes before adjustment.

Check tension by pressing belt midway between pulleys. Belt should deflect about 19 mm (3/4 in.) at 89 N (20 lb force).

IMPORTANT: Pry against alternator frame only.

Adjust tension by loosening cap screw (A) and mounting bolt (B). Apply force to alternator frame (C) until belt tension is correct. Tighten cap screw and bolt.



A—Tension Adjustment Cap Screw
B—Alternator Mounting Bolt
C—Alternator Frame

LV,5010S250,B -19-09SEP97-1/1

Inspect and Adjust A/C Compressor Belt (Cab—5210 and 5310)

Replace if worn or damaged.

NOTE: Run engine for five minutes to warm a cold belt. Let a hot belt cool for 15 minutes before adjustment.

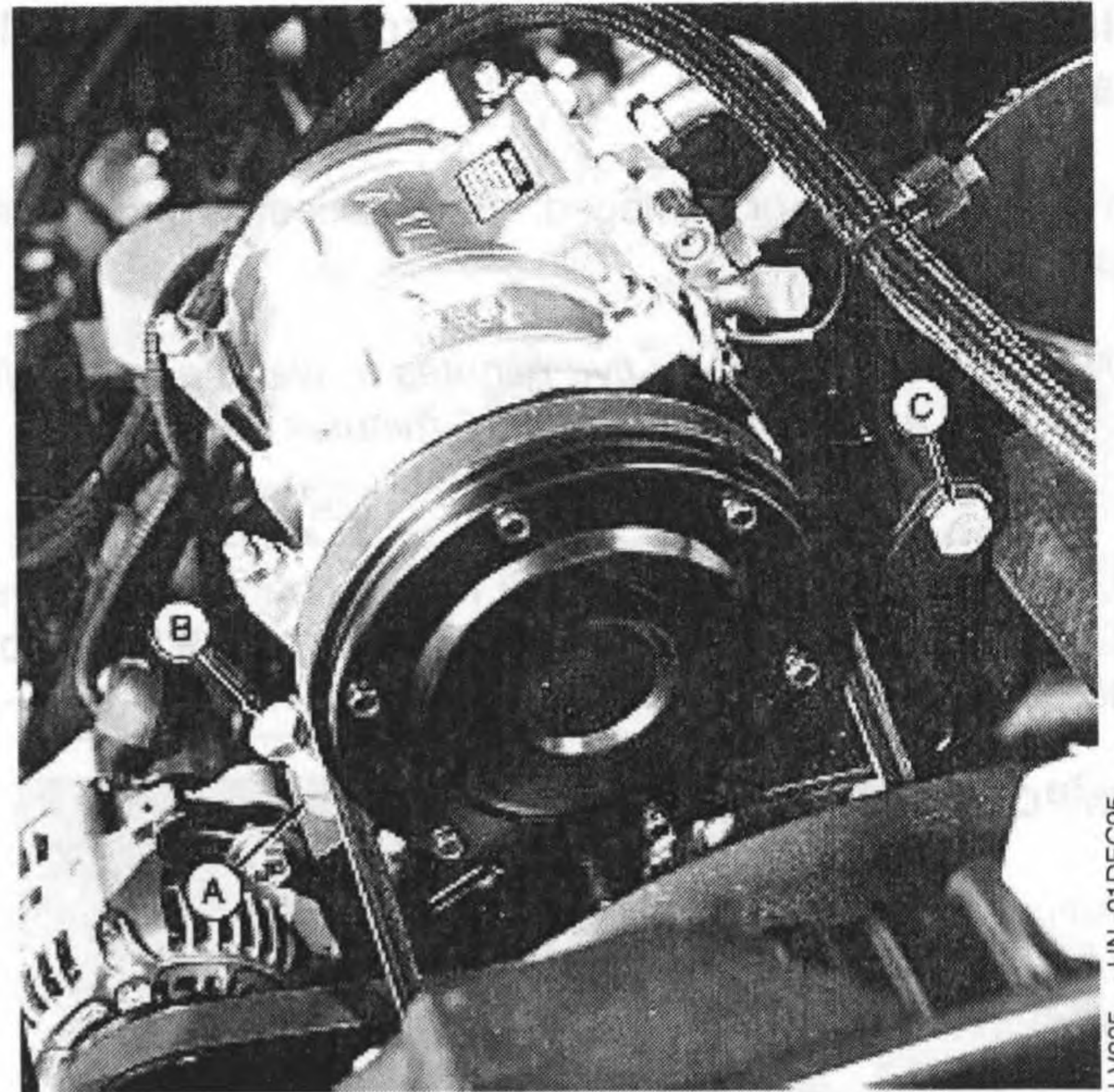
Check tension by pressing belt midway between pulleys. Belt should deflect about 19 mm (3/4 in.) at 89 N (20 lb force).

Continued on next page

LV,5010S250,E -19-09SEP97-1/2

Adjust tension by loosening cap screw (C) and jam nut (A). Turn adjustment bolt (B) clockwise to tighten belt or counterclockwise to loosen belt. Tighten jam nut and cap screw.

- A—Compressor Jam Nut
- B—Tension Adjustment Bolt
- C—Adjustment Cap Screw



LV885 -UN-21DEC95

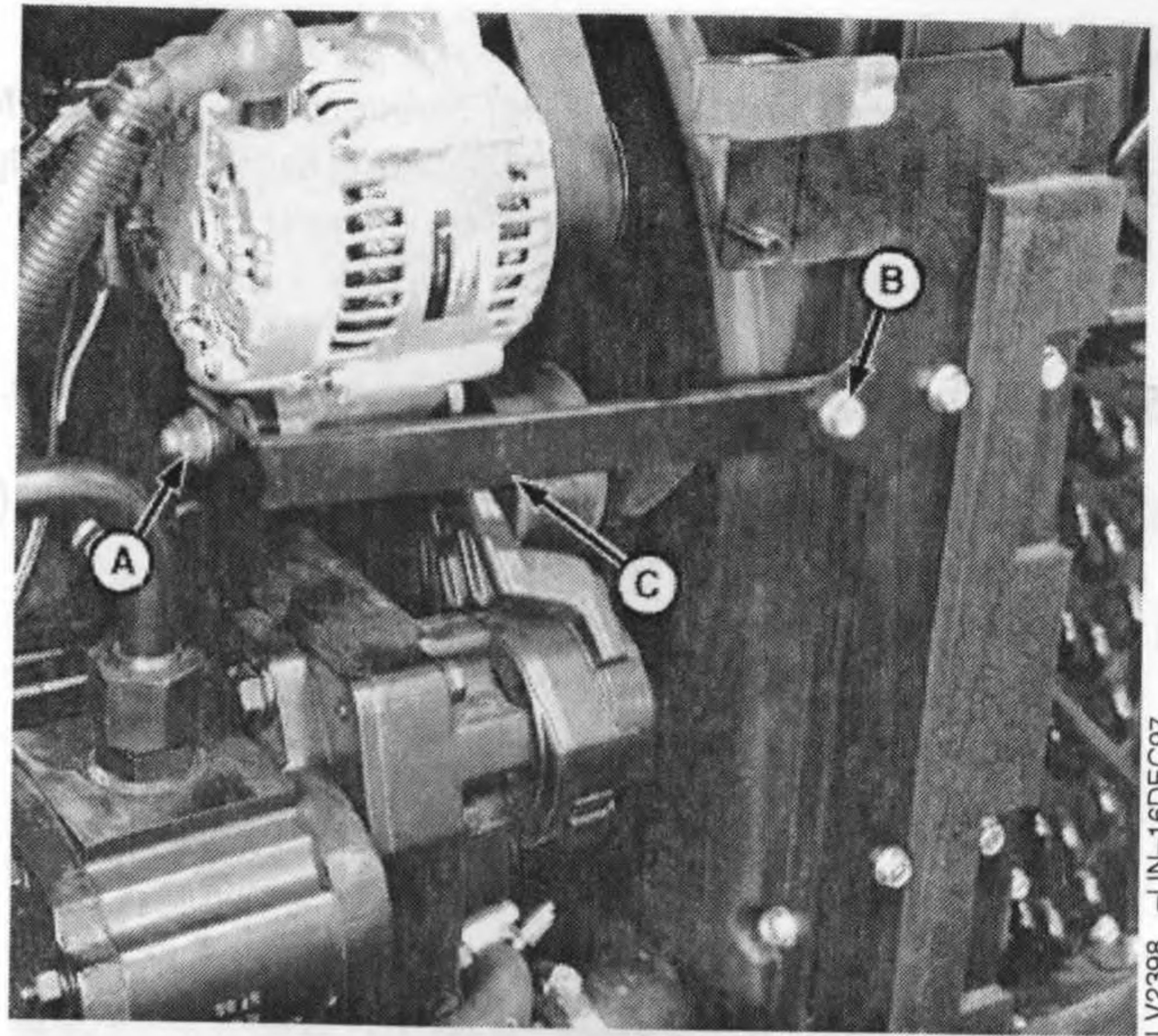
LV,5010S250,E -19-09SEP97-2/2

Inspect and Replace A/C Compressor Belt (Cab—5410 and 5510)

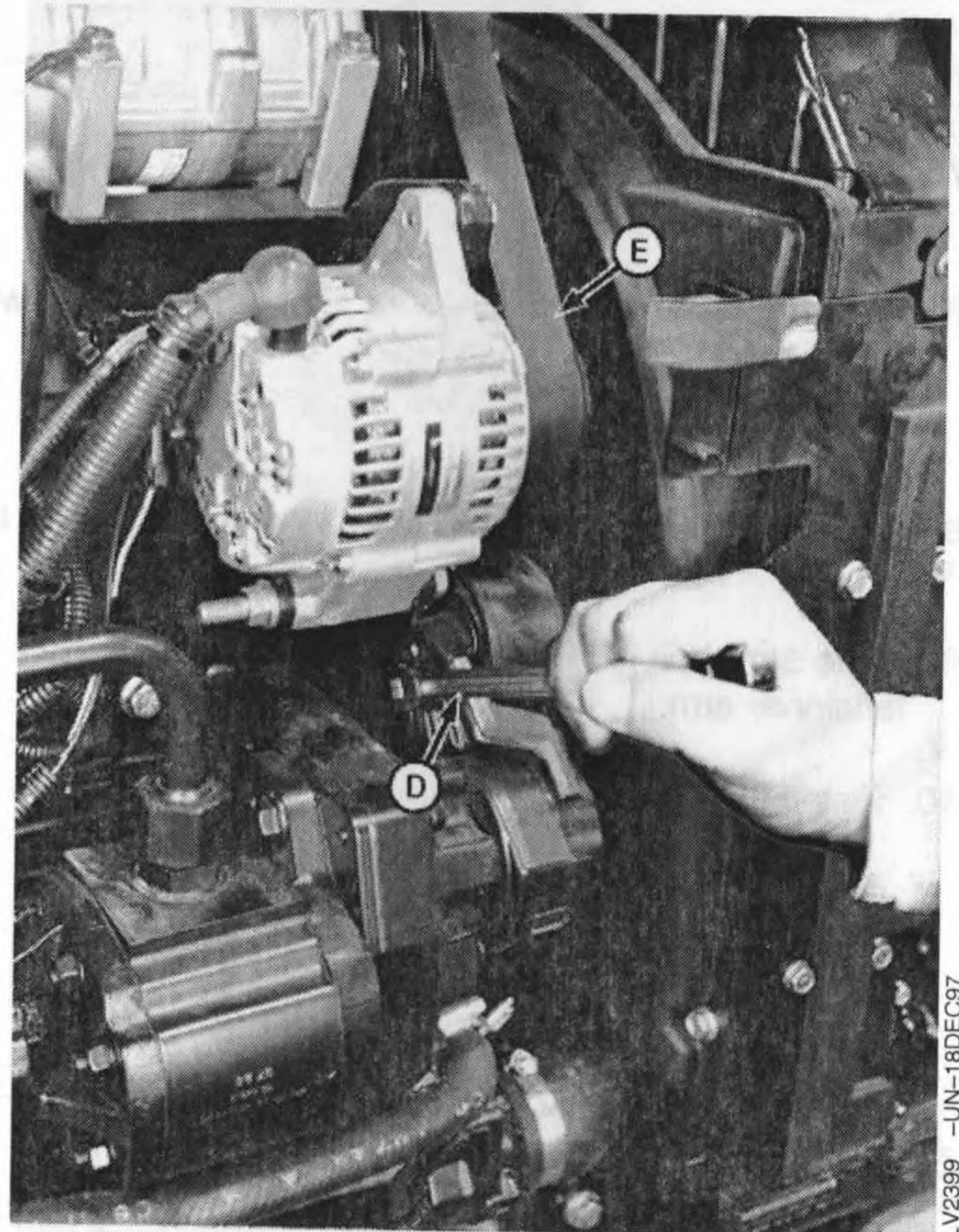
NOTE: Pulley and spring tensioner are not serviceable.

1. Remove right grille panel.
2. Remove nut (A), cap screw (B) and right radiator support bracket (C).
3. Release tension on belt using a 3/8" drive long-handle breaker bar (D). Remove belt (E) from alternator pulley.
4. Release tension on tensioner arm and remove tool.

A—Nut
B—Cap Screw
C—Radiator Support Bracket
D—Breaker Bar
E—A/C Belt



LV2398 -UN-16DEC97



LV2399 -UN-18DEC97

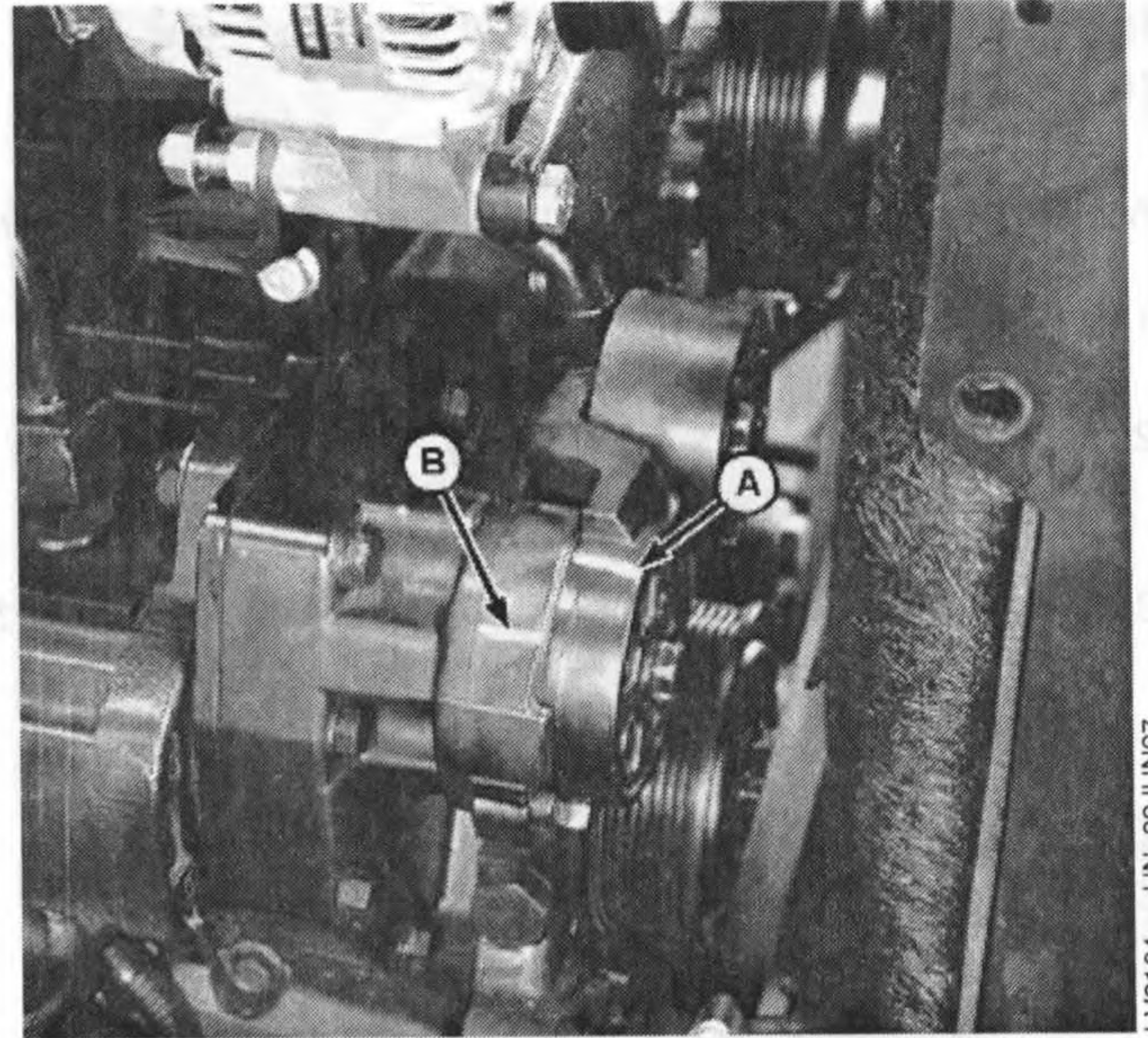
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AG,OUO1032,1443 -19-11AUG99-1/3

NOTE: A belt tension gauge will not give an accurate measurement of the belt tension when automatic belt tensioner is used. Measure tensioner spring tension using a torque wrench and procedure outlined below.

5. Put a mark (A) on swing arm of tensioner as shown.
6. Measure 21 mm (0.83 in.) from (A) and put a mark (B) on tensioner mounting base.

A—Swing Arm Mark
B—Tensioner Mounting Base Mark



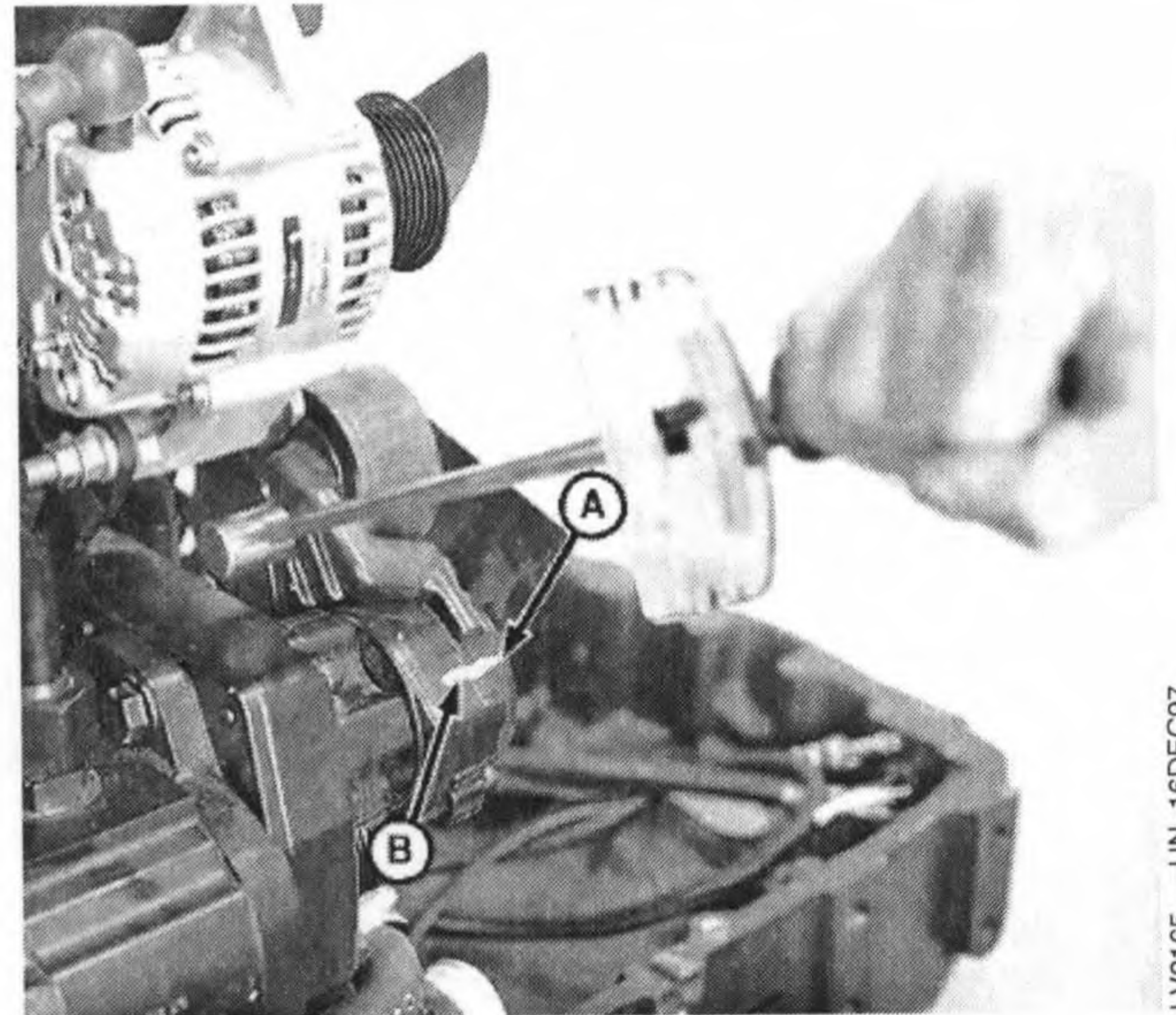
AG,OUO1032,1443 -19-11AUG99-2/3

7. Rotate the swing arm using a torque wrench until marks (A and B) are aligned.
8. Record torque wrench measurement and compare with specification. Replace belt tensioner assembly if recorded measurement is below specification.

Specification

Swing Arm Spring Tension..... 18—22 N•m (13—16 lb-ft)
Torque

9. Make sure belt is in place and release tension on tensioner arm.
10. Install right grille panel.

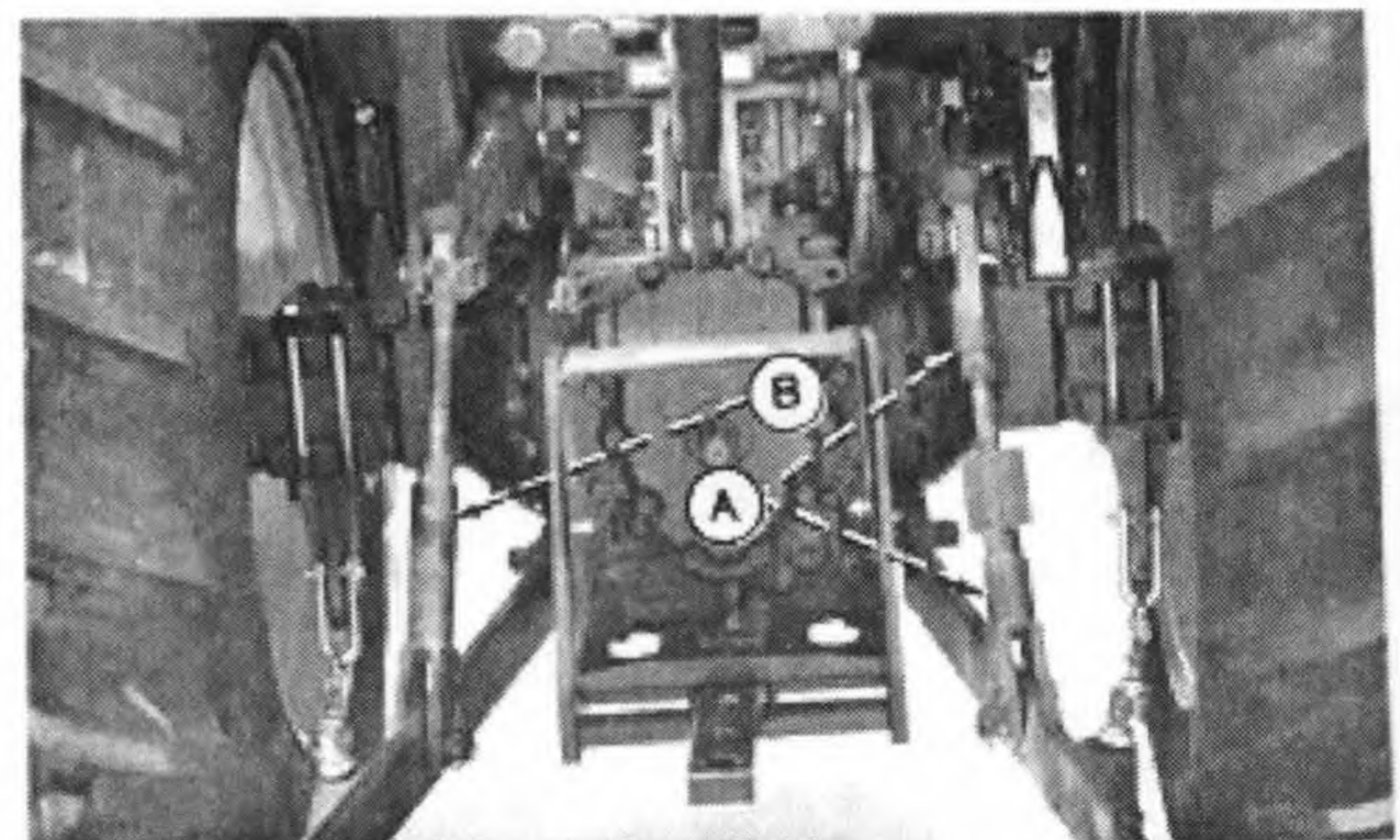


AG,OUO1032,1443 -19-11AUG99-3/3

Lubricate 3-Point Hitch

Lubricate right lift link (A) and left lift link (B) with several shots of multipurpose grease. (See Fuels, Lubricants and Coolant section.)

A—Right Lift Link
B—Left Lift Link



MX,LMIP,SA3 -19-10JAN96-1/1

Check Neutral Start System

Your John Deere tractor is equipped with interlocks to prevent inadvertent movement when the engine is started. Turning the key switch with the clutch pedal depressed should crank the engine if all of the following conditions exist:

CollarShift and SyncShuttle™ transmissions

- Gear shift lever (A) in "Park" or "Neutral"
- PTO lever (B) in disengaged position

PowrReverser™ transmission

- Forward-Neutral-Reverse lever (C) in "Neutral" or "Park"
- PTO lever (B) in disengaged position

CAUTION: If starter turns engine in any of the following steps, have the neutral start system repaired by your John Deere dealer.

Turning the key switch to the start position should NOT start the engine, if either of the following exist:

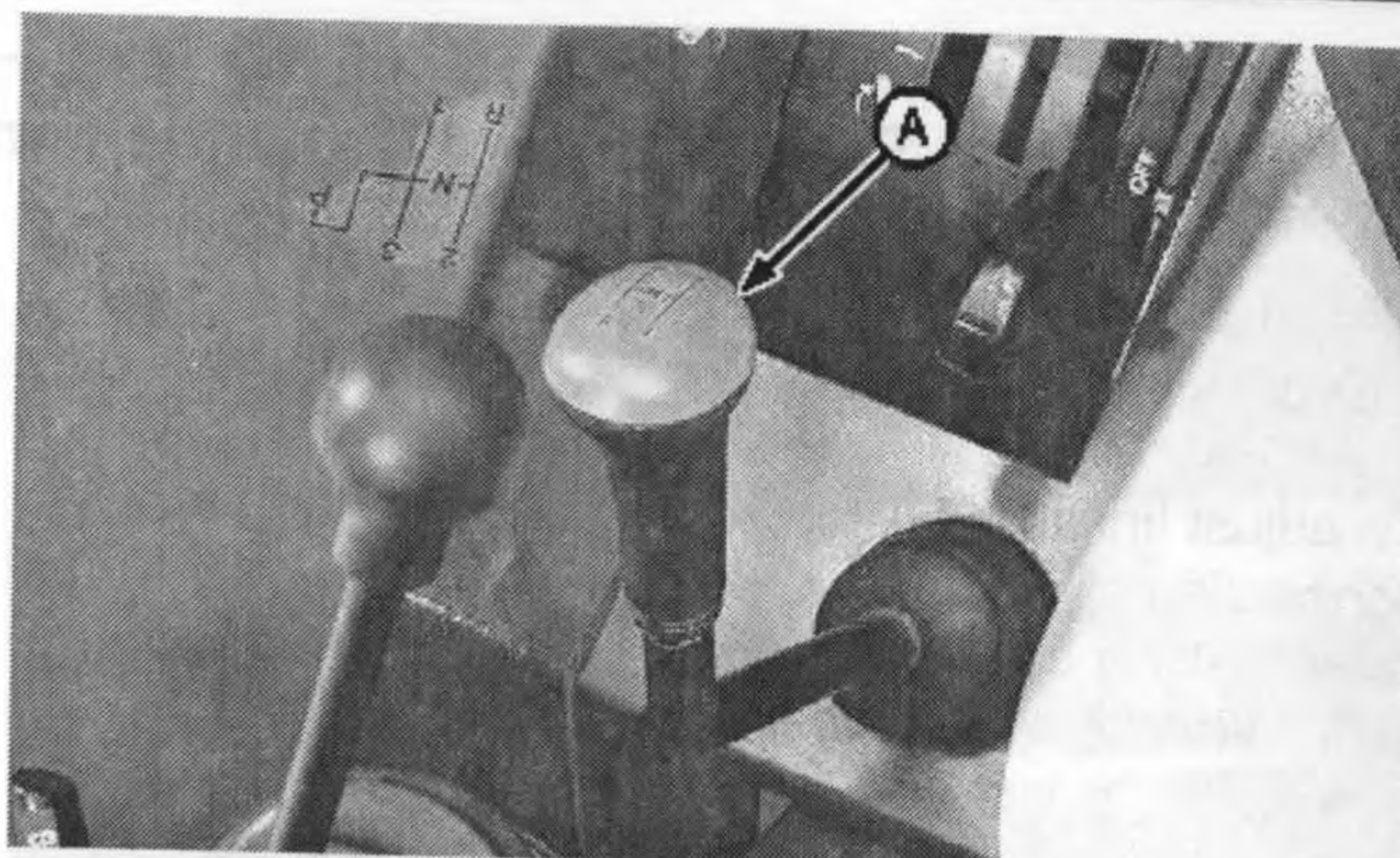
CollarShift and SyncShuttle™ transmissions

- Gear shift lever (A) in gear (not in Park or Neutral position)
- PTO lever (B) in engaged position

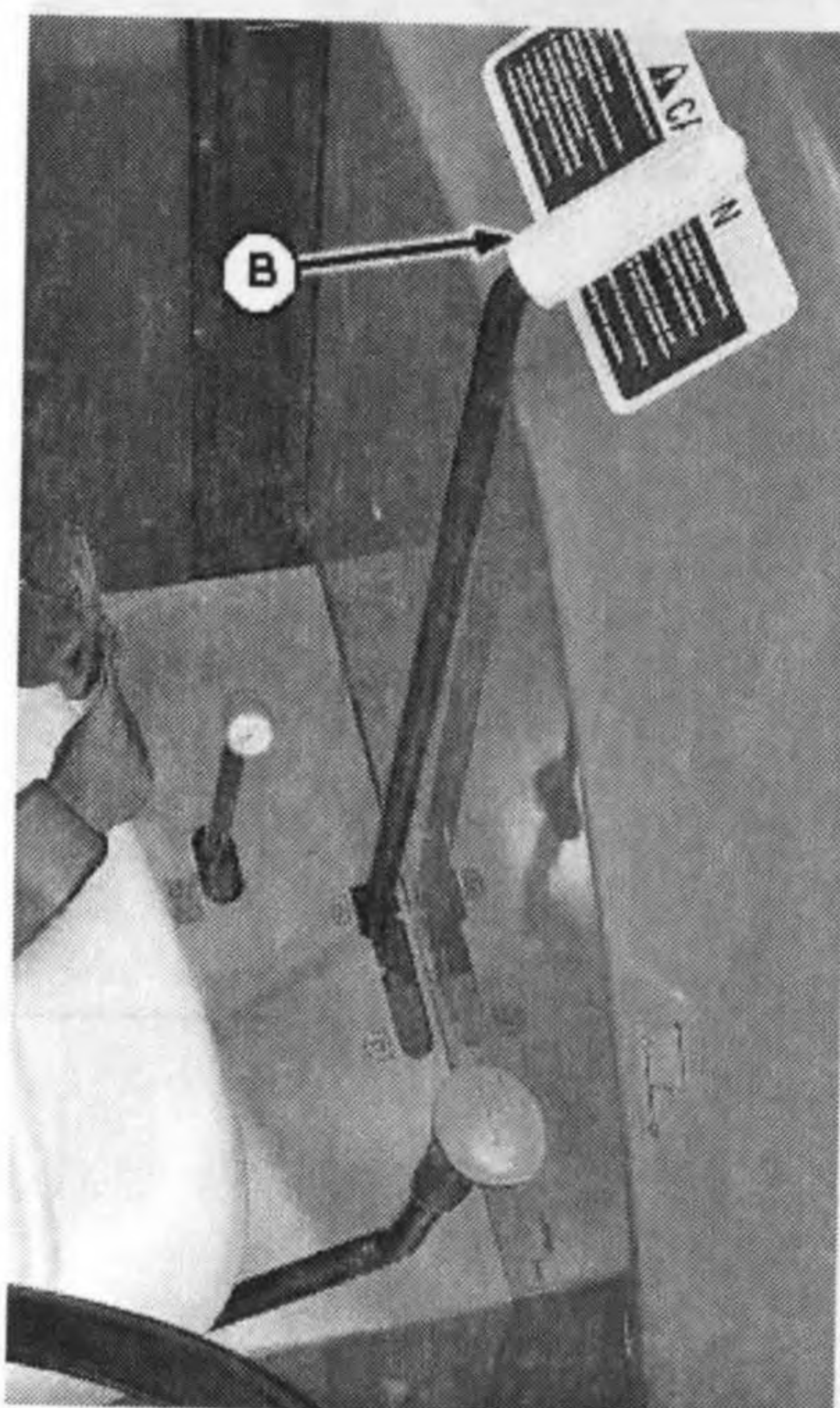
PowrReverser™

- Forward-Neutral-Reverse lever (C) in gear (not in Park or Neutral position)
- PTO lever (B) in engaged position

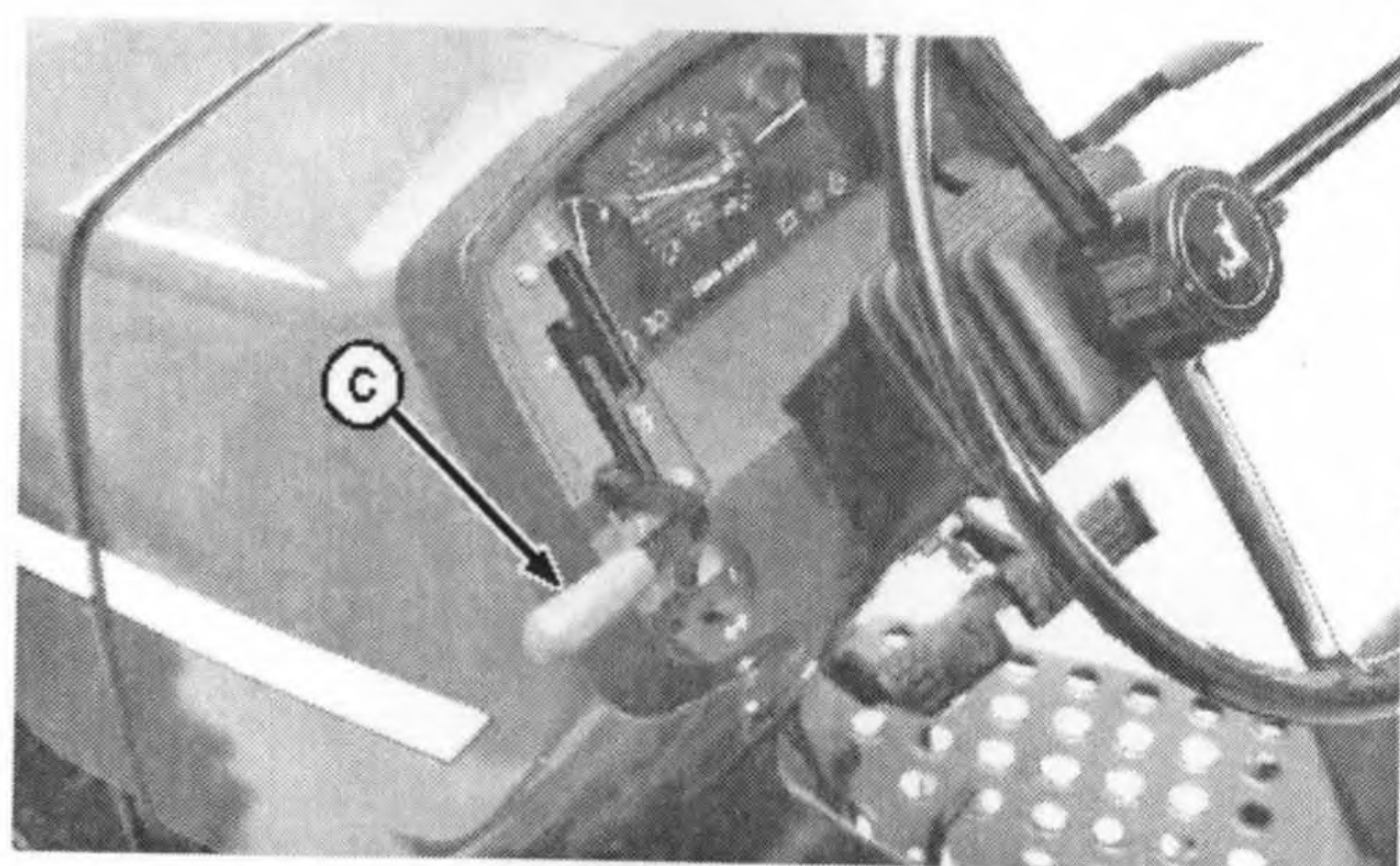
A—Gear Shift Lever
B—PTO Control Lever
C—Forward-Neutral-Reverse Lever



LV1964 -UN-04JUN97



LV1963 -UN-04JUN97



LV1992 -UN-28AUG97

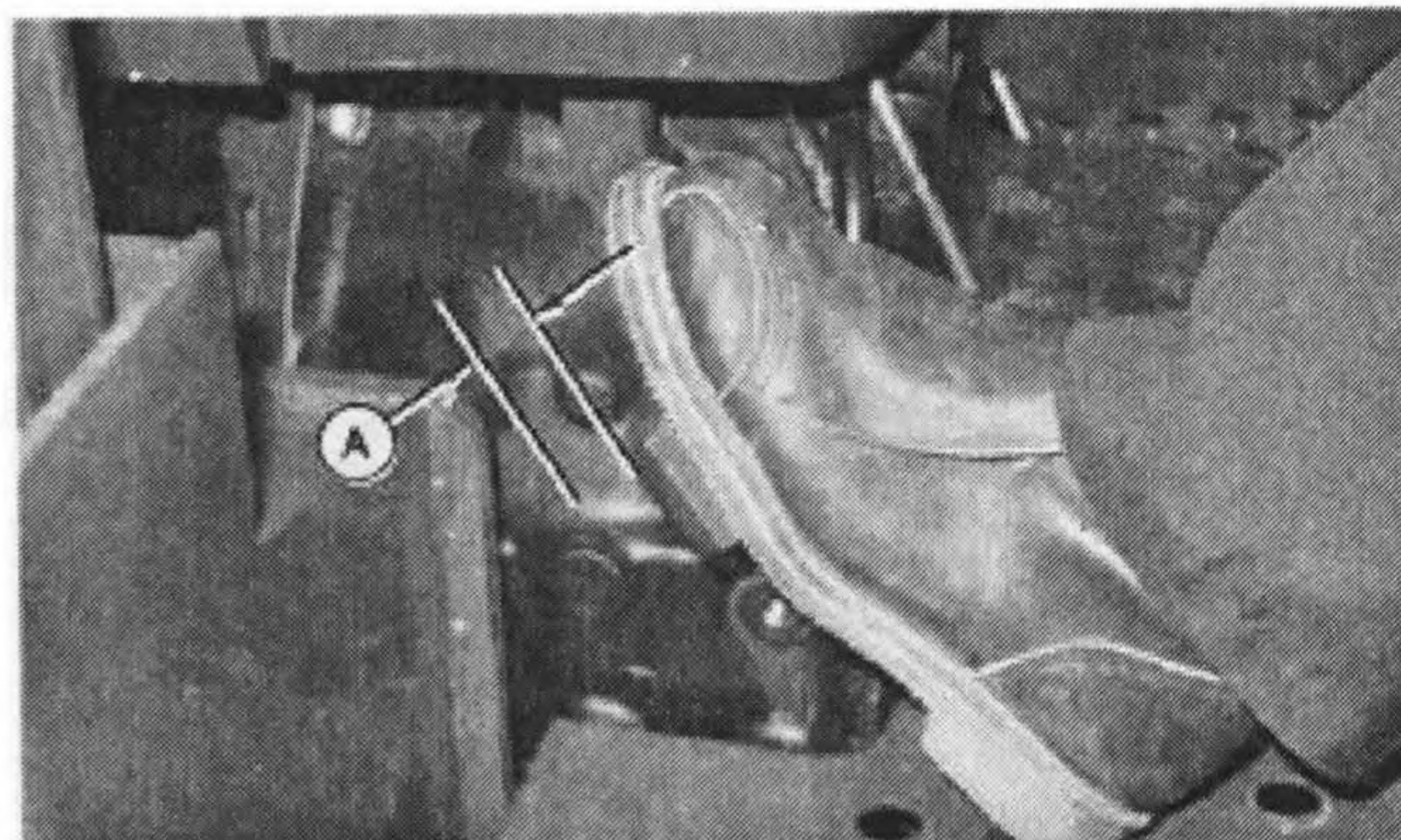
SyncShuttle is a trademark of Deere & Company.
PowrReverser is a trademark of Deere & Company.

Check and Adjust Clutch Pedal Free Play— CollarShift and SyncShuttle™ Transmissions

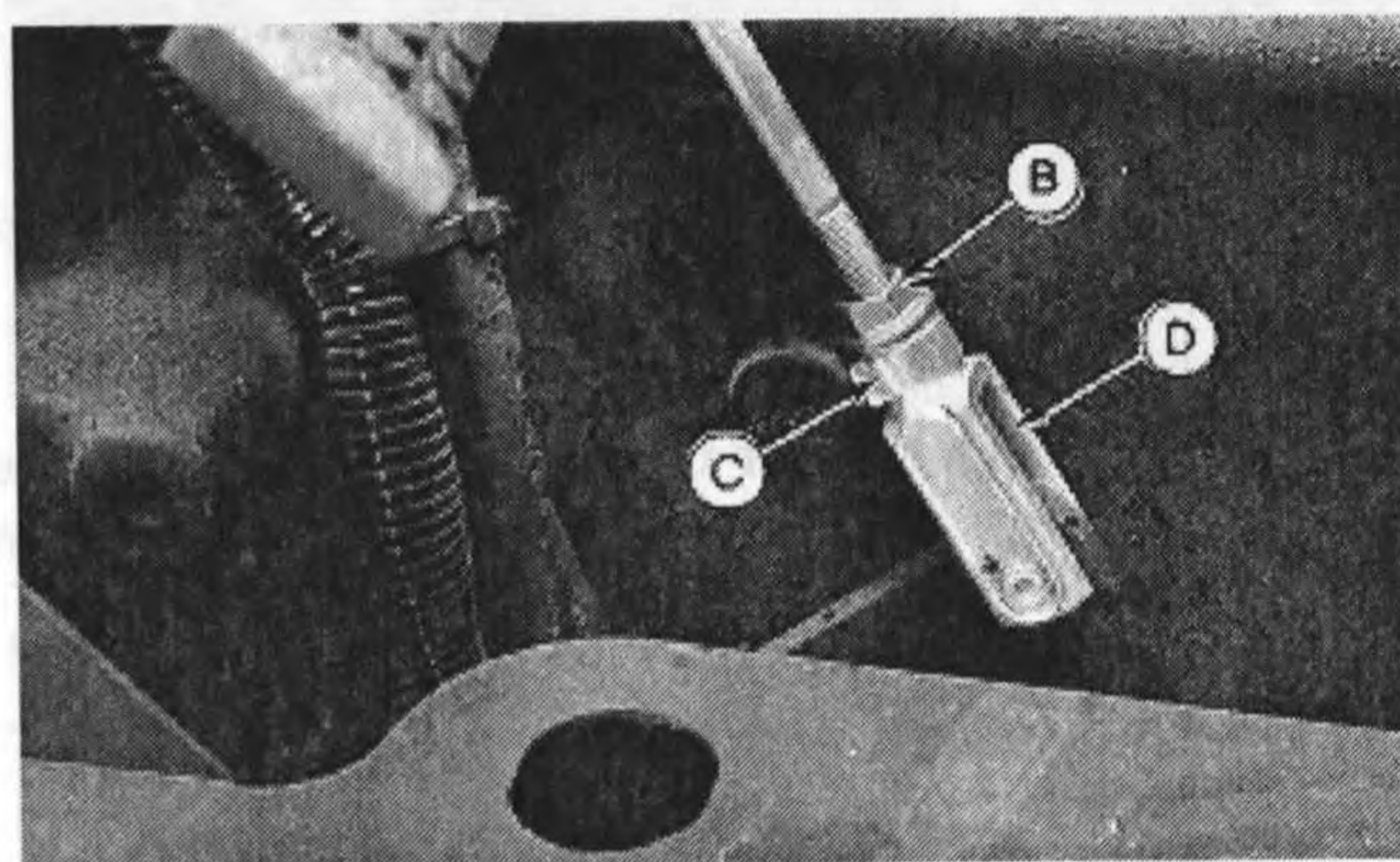
Measure free play at top of pedal stroke (A). Adjust linkage to obtain 10 to 16 mm (0.4 to 0.6 in.) free play.

To adjust linkage, loosen lock nut (B), unlatch the connecting clip pin (C) and remove. Rotate clevis (D). After making adjustment, replace clip and recheck free play. When free play is correct, tighten lock nut.

- A—Clutch Pedal Allowable Free Play
- B—Lock Nut
- C—Clip Pin
- D—Clevis



LV274 -UN-18FEB92



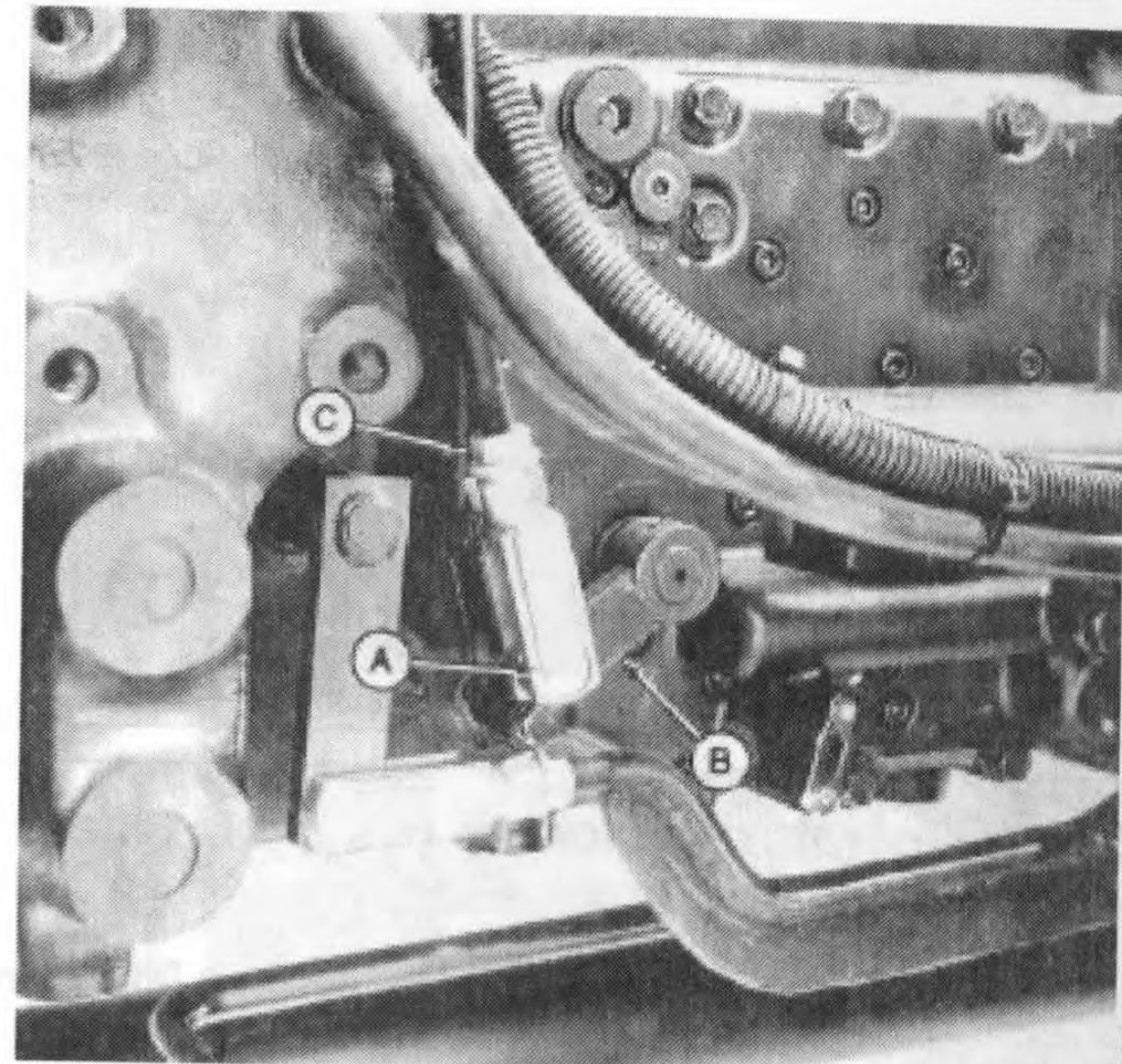
M46979A -UN-22APR94

SyncShuttle is a trademark of Deere & Company.

LV,5010S250,D -19-09SEP97-1/1

Adjust Clutch Pedal Linkage— PowrReverser™ Transmission

1. Block tires (front and rear).
2. Remove left-hand dash cowl and disconnect clutch pedal return spring.
3. Disconnect long PTO rod assembly at both ends and remove assembly.
4. Remove left-hand step.
5. Remove clevis pin (A) and disconnect clevis from clutch control arm (B).
6. Push clutch pedal down fully and retain in this position.
7. Using a wrench, turn clutch control arm clockwise until it stops.



A—Clevis Pin
B—Clutch Control Arm
C—Jam Nut

NOTE: The clutch control arm is spring loaded in both directions from its free position. You must feel the spring in both directions to assure that control arm is in its free position and not stuck in either direction, before linkage can be adjusted.

8. Loosen jam nut (C) on clutch rod and adjust rod length until clevis pin can be inserted through holes in clevis and hole in clutch control arm when clutch is fully depressed and control arm is rotated fully clockwise. Remove clevis pin and rotate clevis 1/2 turn (to lengthen rod) and tighten jam nut.
9. Install clevis pin and locking clip.
10. Install left-hand step and long PTO rod assembly.
11. Install clutch return spring and dash cowl.

PowrReverser is a trademark of Deere & Company.

Continued on next page

LV 5010S250,F -19-04SEP97-1/2

NOTE: Whenever a tractor engine is started with PowrReverser™ lever in park or neutral, the tractor is designed not to move unless clutch pedal is fully depressed one time to cycle engagement override valve.

12. Test clutch operation.

PowrReverser is a trademark of Deere & Company.

LV,5010S250,F -19-04SEP97-2/2

Clean Operator Enclosure (Cab) Air Filters

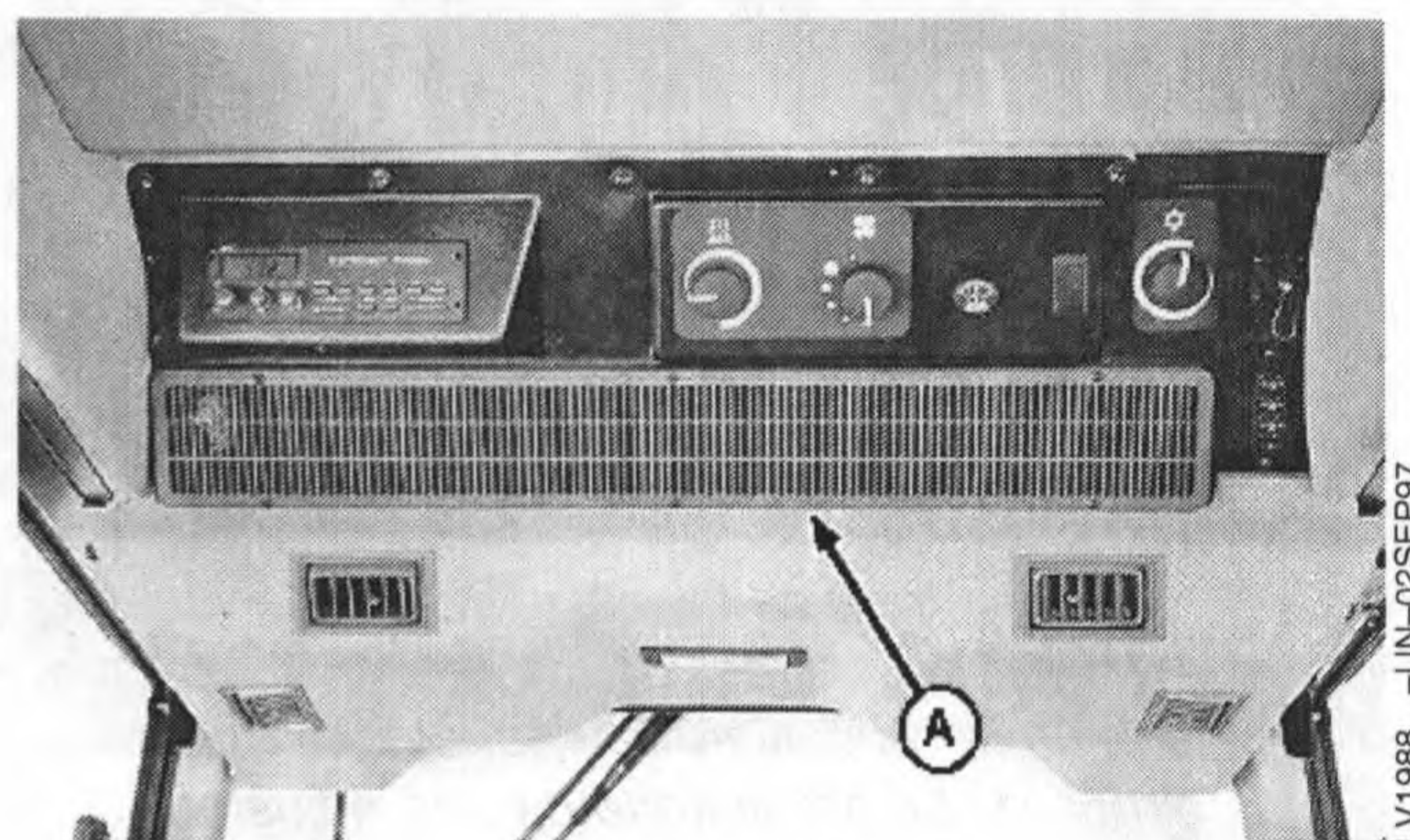
CAUTION: The air quality system air filters are not designed to filter out harmful chemicals. Follow the instructions in the implement operator's manual and those given by the chemical manufacturer when using agricultural chemicals.

Remove six screws and recirculation vent and filter (A). Clean filter under running water and dry with compressed air. Cleaning filter may be required more often in dusty conditions.

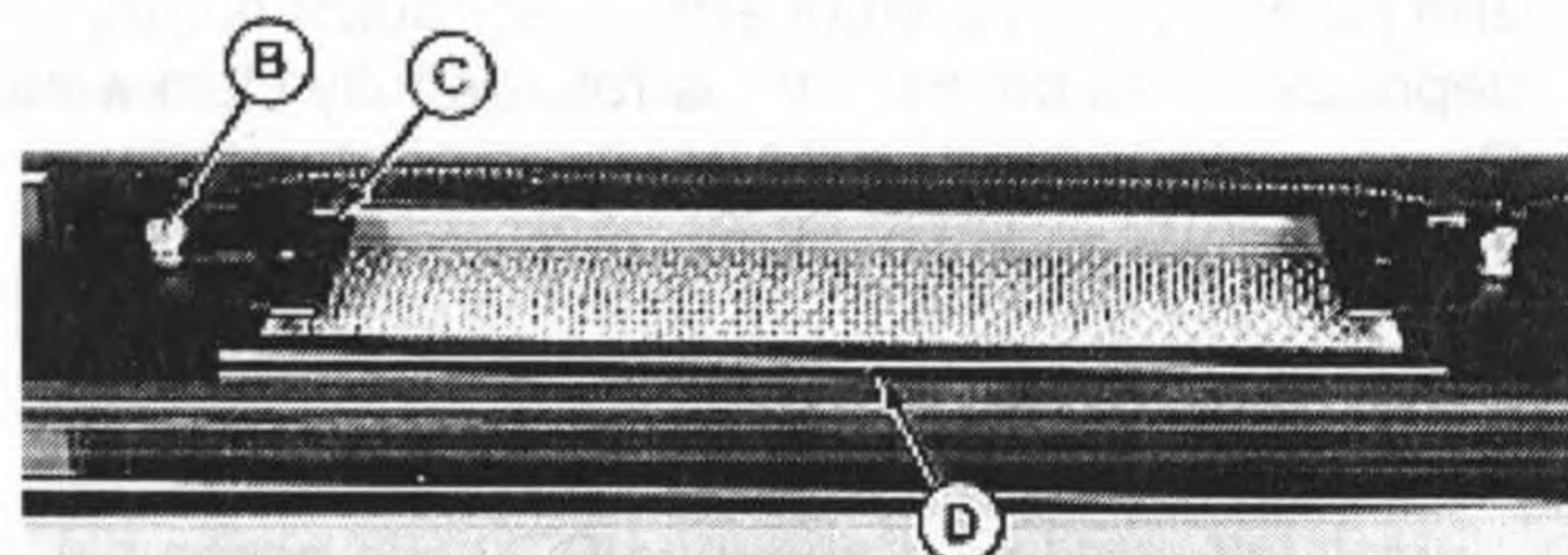
NOTE: A fresh air intake filter is located above each cab door, under roof.

Loosen two screws (B) and slide retainer plates (C) away from filter retainer (D). Remove retainer and filter. Clean filters with compressed air. Inspect filters for damage, replace as necessary.

- A—Recirculation Vent and Filter
- B—Cap Screw (2 used)
- C—Retainer Plate (2 used)
- D—Fresh Air Intake Filter Retainer



Overhead Panel



Side of Cab, Above Door

LV,5010S250,G -19-04SEP97-1/1

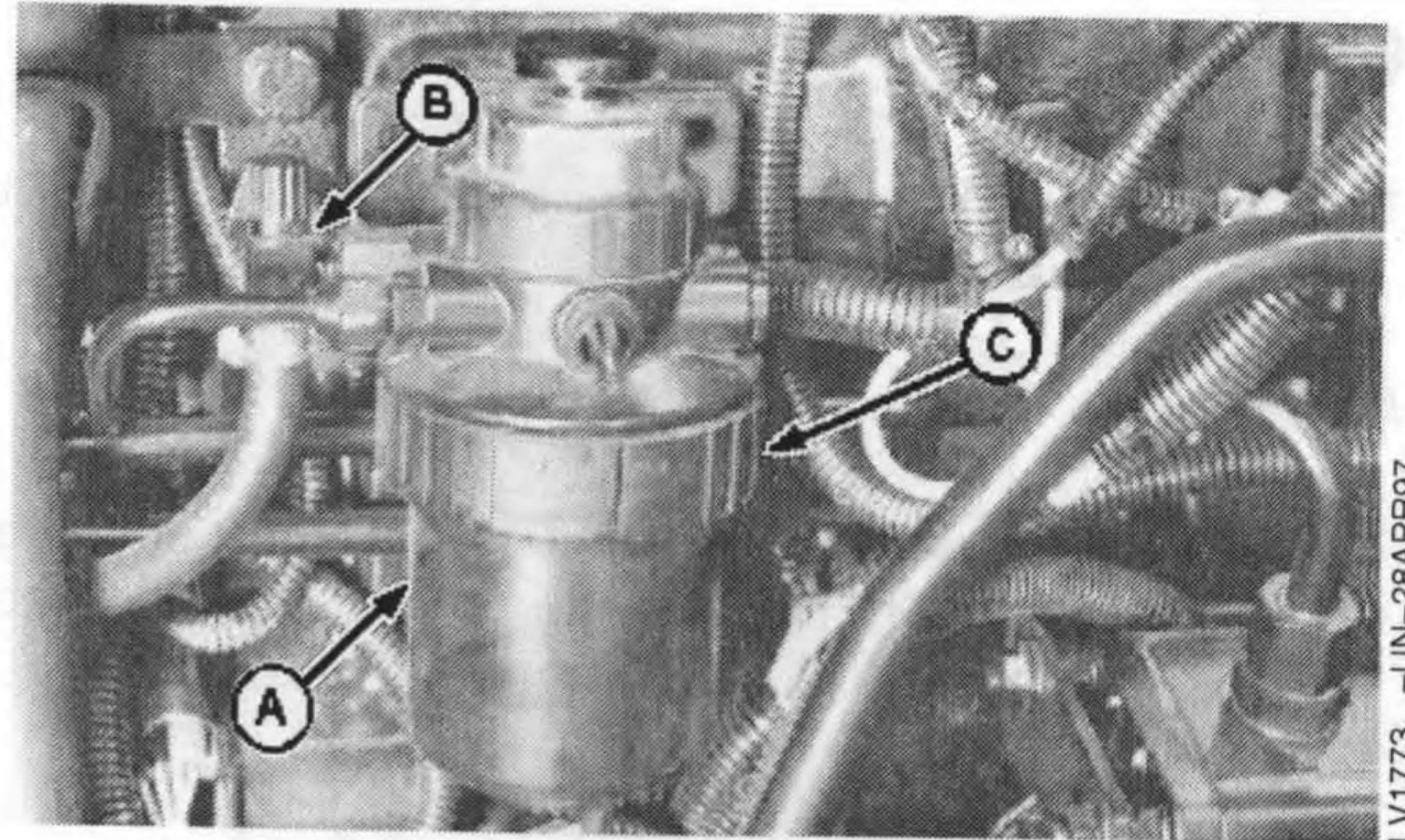
Service—500 Hours

Replace Fuel Filter

Replace FuelGard™ filter element (A) at least once a year.

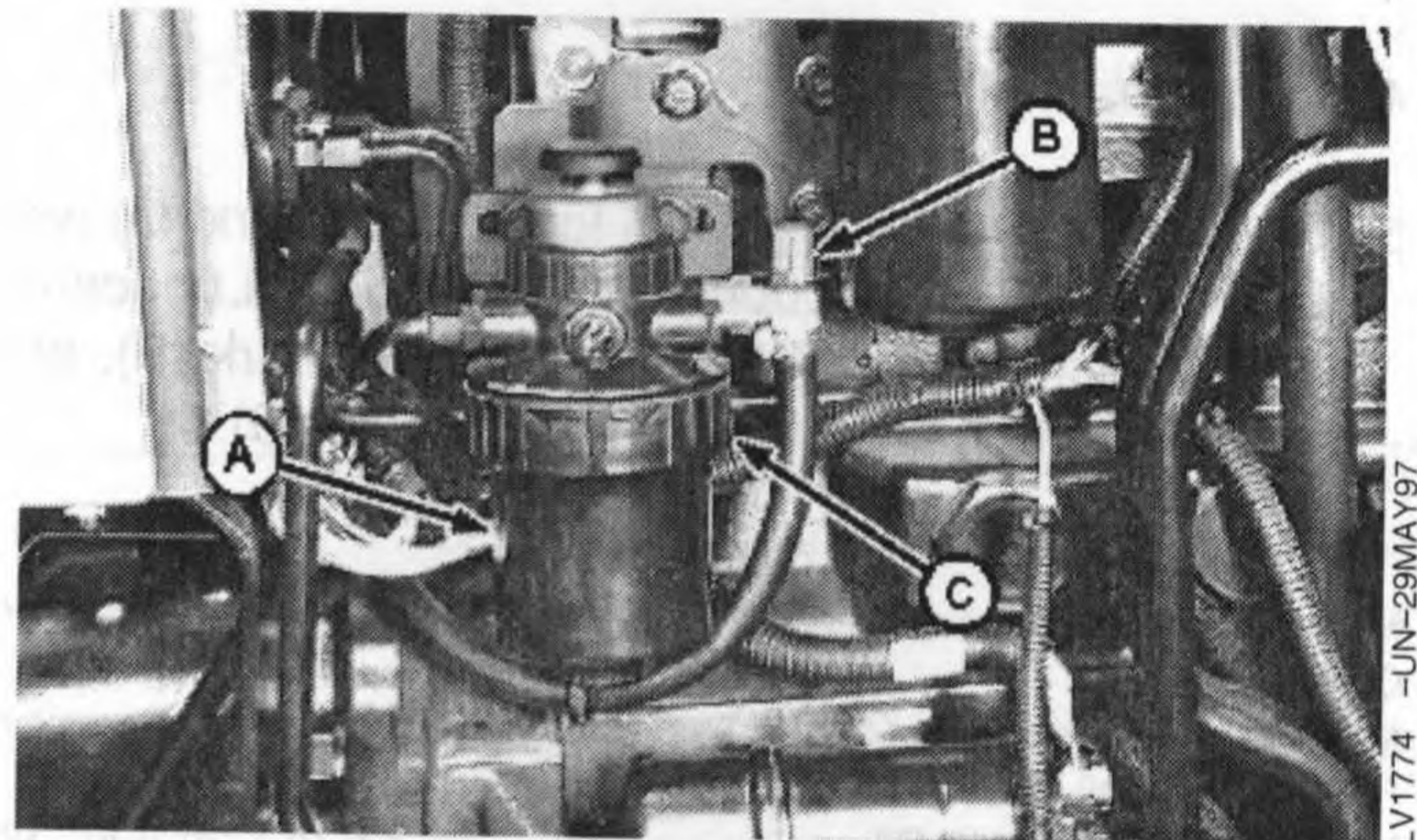
1. Close fuel shut-off (B).
2. Remove retaining ring (C) and filter.
3. Install new filter with retaining ring hand tight.
4. Open fuel shut-off and bleed air from filter. (See Bleeding Fuel System in Service section).

A—FuelGard™ Fuel Filter Element
B—Fuel Shut-Off
C—Retaining Ring



5210 and 5310 Shown

LV1773 -UN-28APR97



5410 and 5510 Shown

LV1774 -UN-29MAY97

FuelGard is a trademark of Deere & Company.

LV,5010S500,A -19-03JUN97-1/1

Service—600 Hours

Change Oil in MFWD Axle—If Equipped

1. Tractor should be positioned on level ground to assure correct oil levels when filling.

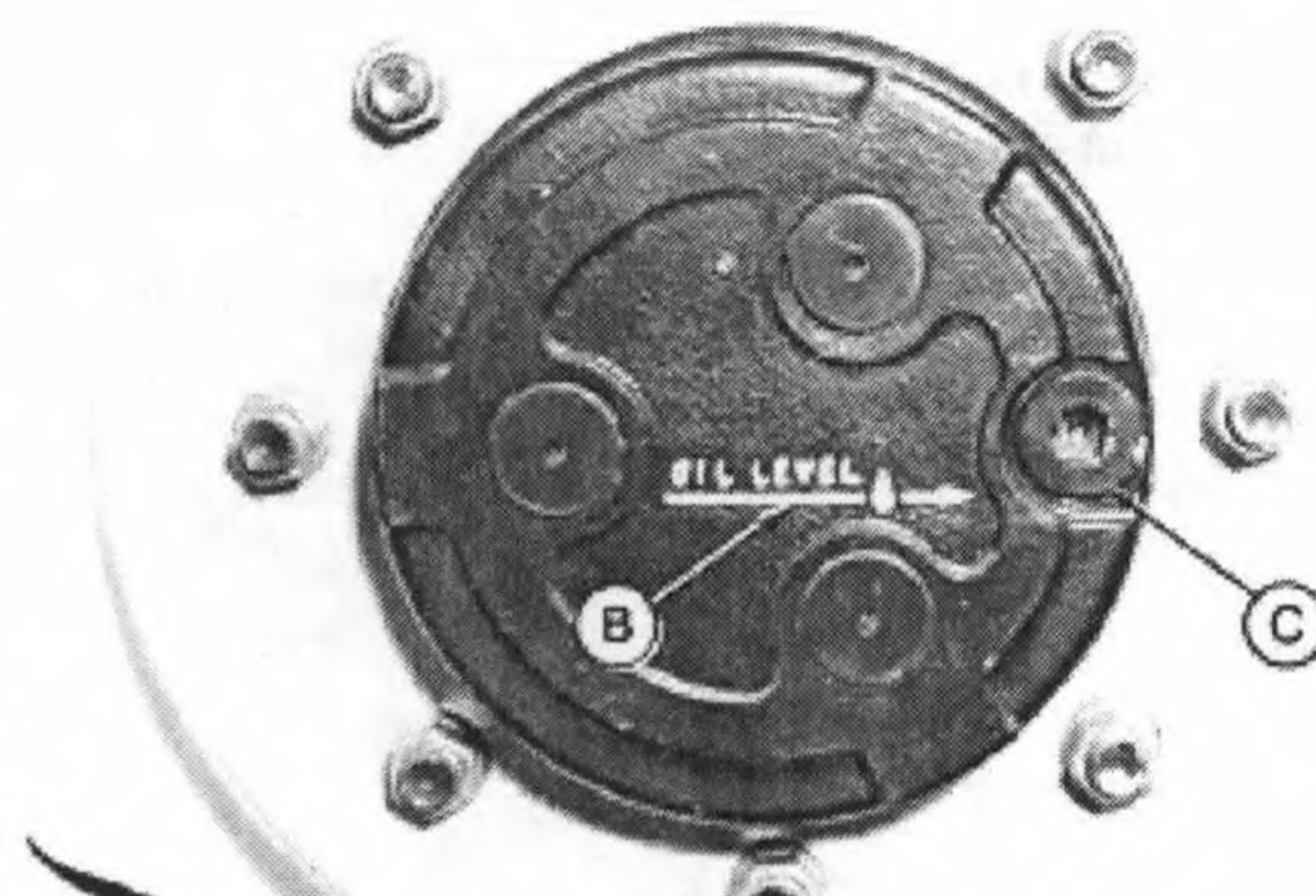
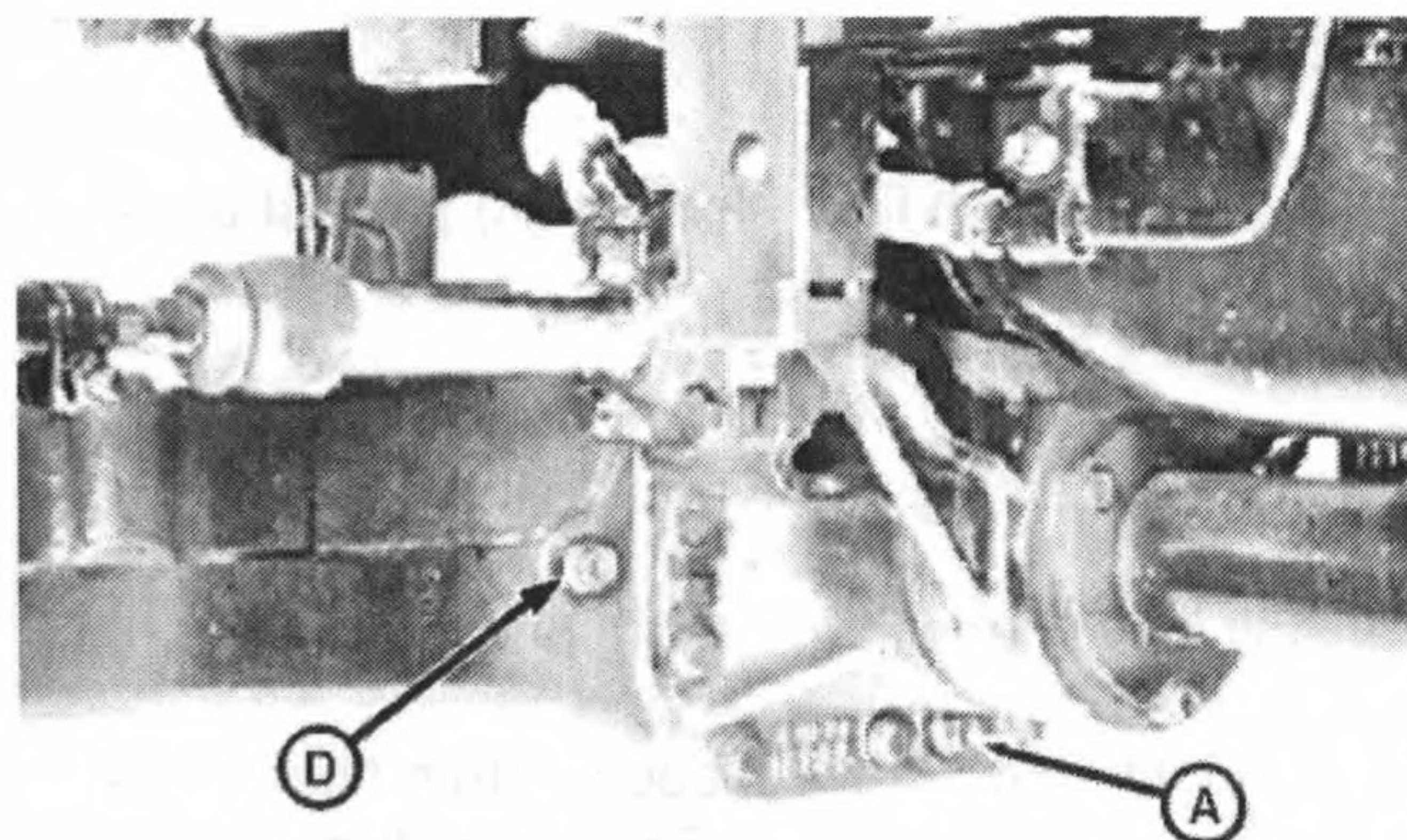
NOTE: Each front wheel hub has a drain/fill plug (C).

2. Remove drain/fill plugs (A, C and D). When draining the wheel hubs, rotate the wheels so the drain/fill hole (C) is in the 6 o'clock position. Drain oil.
3. Rotate the wheels so oil level mark (B) is parallel to the ground.
4. Install drain plug (A).
5. Fill differential housing at fill locations (C and D) with SAE 80W-90 Gear Lubricant. (See Fuels, Lubricants and Coolant section.) Fill hubs to level mark (B), and differential housing to bottom of fill hole (D).

Specification

MFWD Differential Housing Axle.....	5 L (5.2 qt)	Approximate
Oil Capacity		
MFWD Wheel Hub Axle Oil	0.6 L (0.6 qt)	Approximate
(Each) Capacity		
MFWD Assembly Axle Oil	6.2 L (5.7 qt)	Approximate
Capacity		

IMPORTANT: Check oil level after 30 minutes. Oil flows very slowly through bearings and axle housings. Fill through hub fill port (C) on both sides and differential housing port (D) to reduce fill time. Add oil as needed.



- A—Drain Plug
- B—Oil Level Fill Mark
- C—Wheel Hub Drain/Fill Port Plug
- D—Differential Housing Drain/Fill Port Plug

LV,5010S600,A -19-21MAY99-1/1

LV3021 -JUN-09JUN99

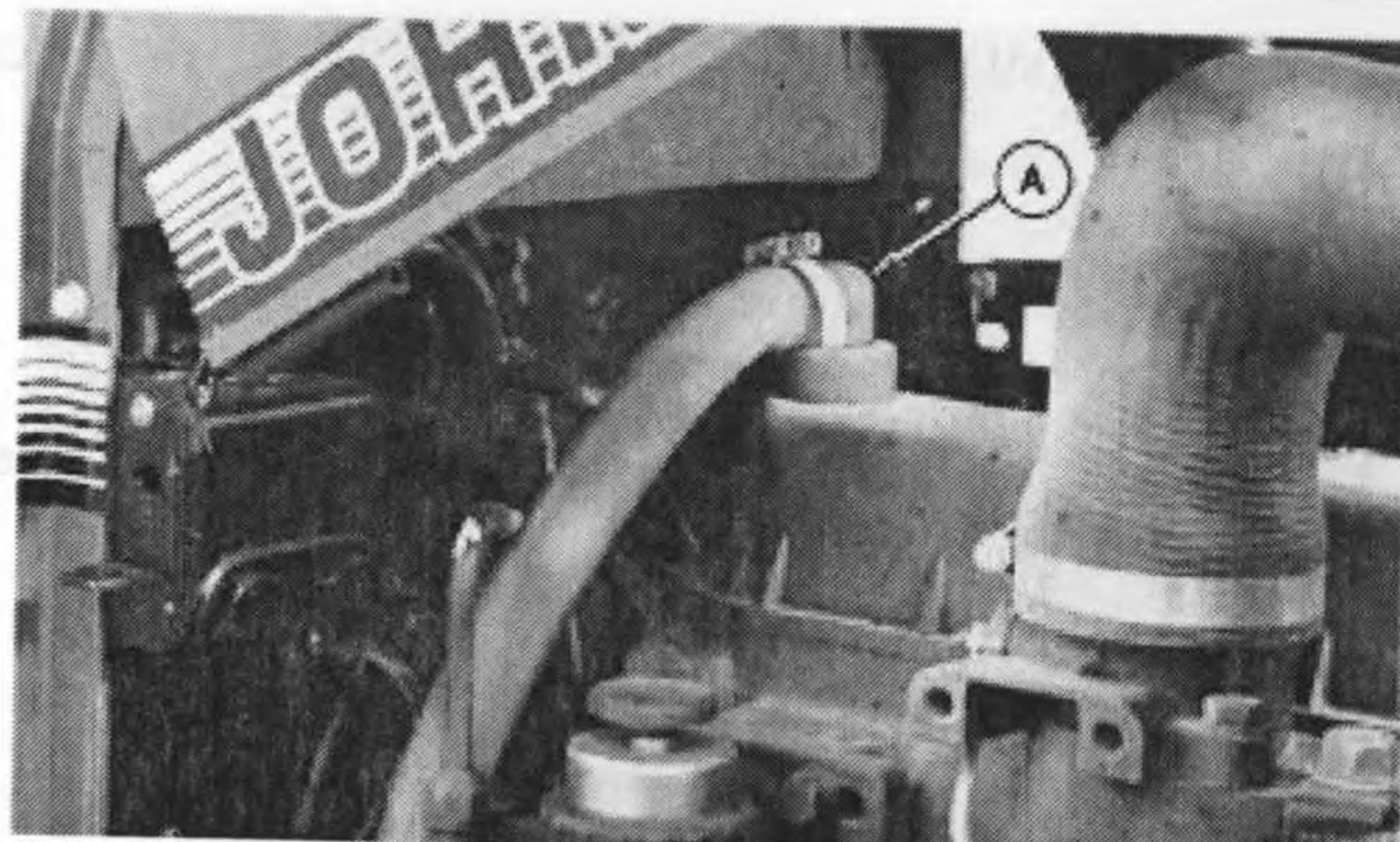
M47186 -19-29JAN92

Clean Engine Crankcase Vent Tube

⚠ CAUTION: Reduce compressed air to less than 210 kPa (2 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.

Remove crankcase vent tube (A) from engine. Wash in solvent or blow clean with compressed air. Reassemble vent tube breather cap to engine. Be sure vent tube is not kinked or pinched.

A—Crankcase Vent Tube



MX,LMIP,XA1 -19-23JUN94-1/1

Pack Front Wheel Bearings (Adjustable Front Axle)

1. Jack up front end of tractor.

CAUTION: Support tractor securely on stands before removing a wheel.

2. Remove hub cap, cotter pin, and wheel nut.
3. Remove washer and wheel bearings. Clean all parts in solvent and blow dry with compressed air. Replace any worn or damaged parts.
4. Pack bearing with multipurpose grease. (See Fuels, Lubricants and Coolant section.) Coat seal with grease.
5. Install bearings, washer, and wheel nut.
6. Tighten wheel nut until a slight drag is felt when hub is turned. Back nut off just enough to install cotter pin in hole in wheel spindle.
7. Install hub cap and wheels. Tighten lug bolts to specification. Tighten bolts again after driving tractor 100 m (109 yd) and again after three hours and 10 hours use.

Specification

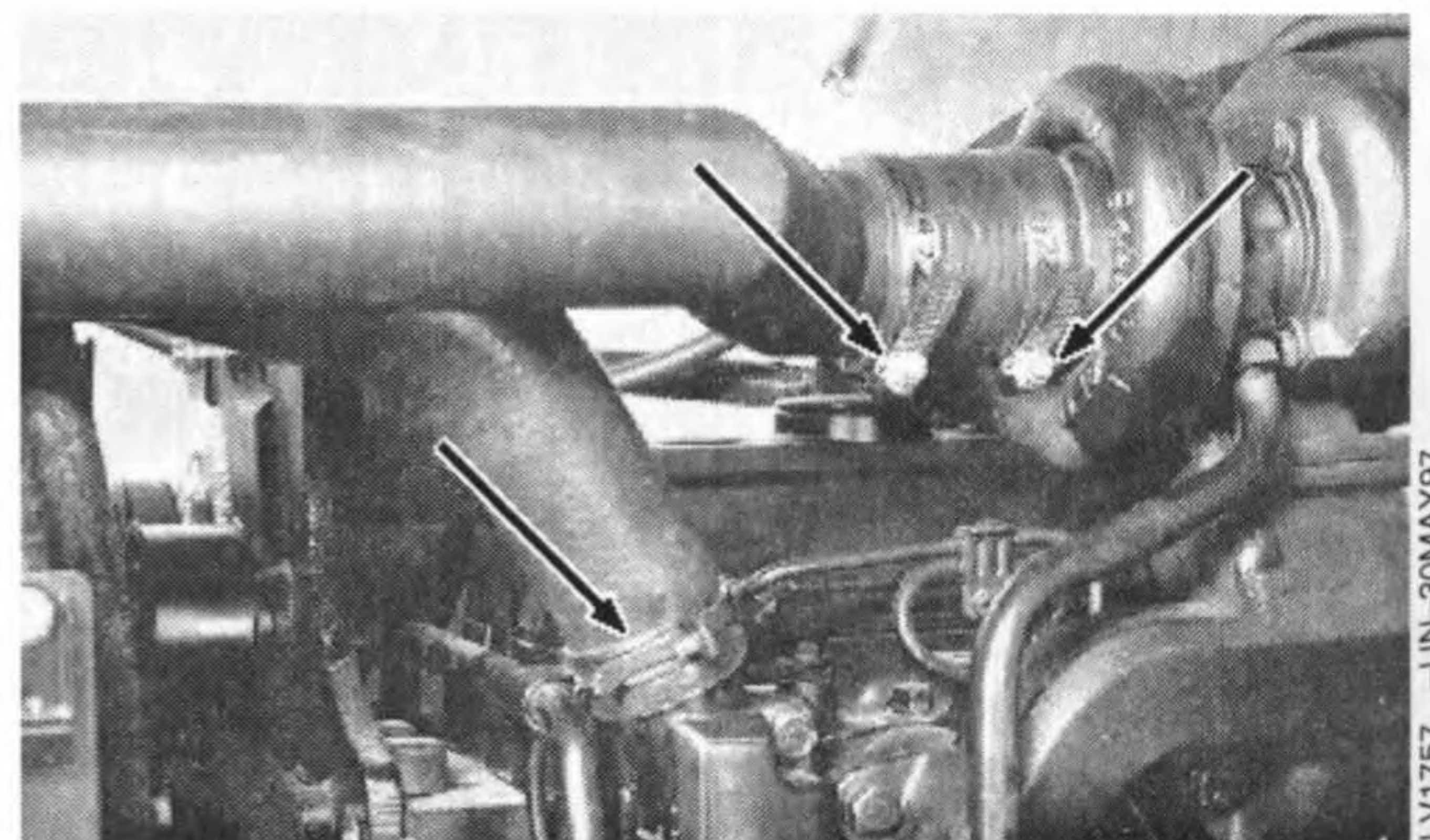
Adjustable Front Axle Lug Bolts..... 175 N•m (130 lb-ft)
Torque

MX,LMIP,YA3 -19-10JAN96-1/1

Check Hoses and Hose Clamps for Tightness

Check the following systems hose clamps for tightness:

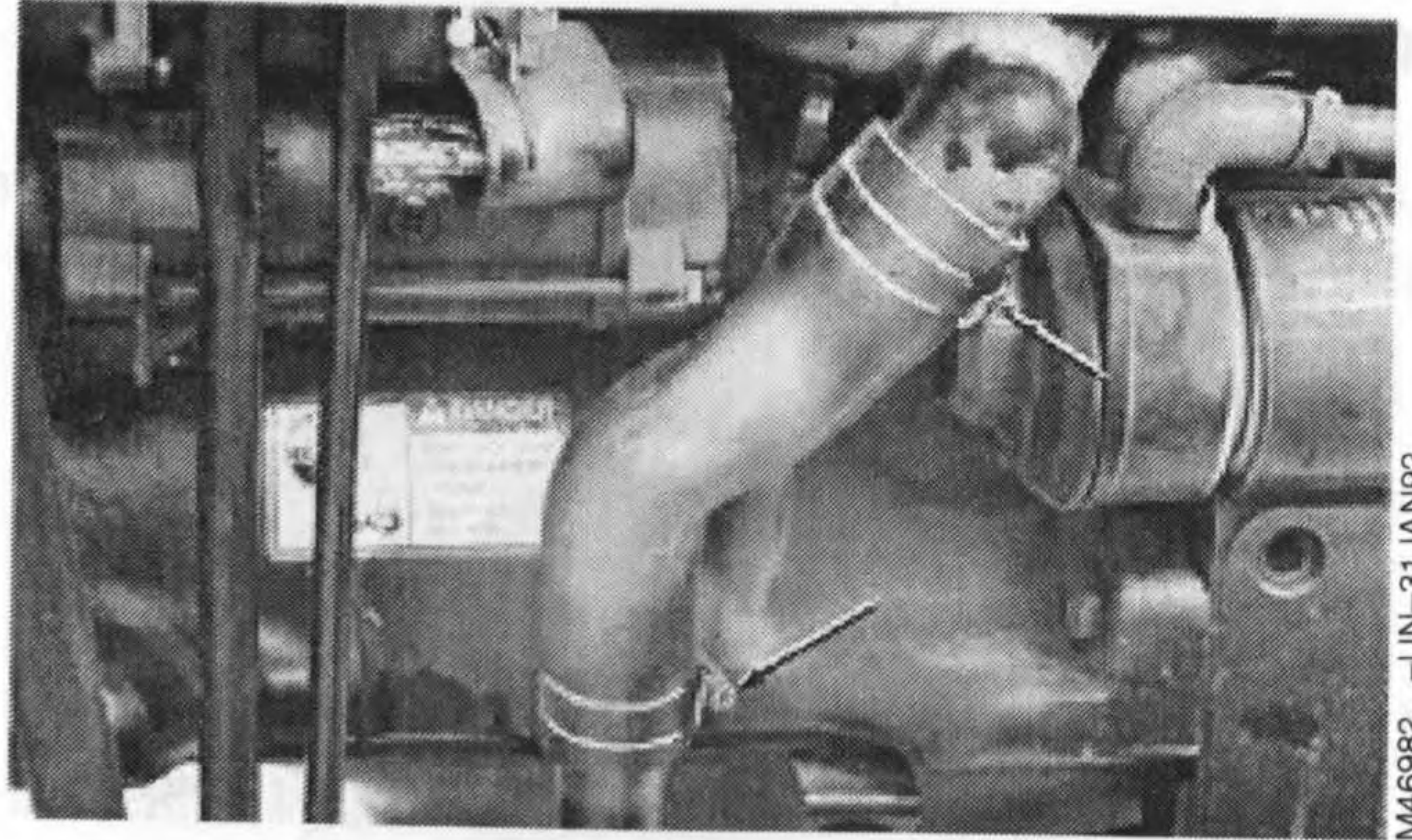
- Air Cleaner to engine intake or turbocharger
- Engine Cooling
- Hydraulics
- Fuel
- Air Conditioning and Heater (Cab)



Continued on next page

LV,5010S600,B -19-03JUN97-1/2

Check all hoses for cracks which could cause leaks or possible failure. Replace as necessary.



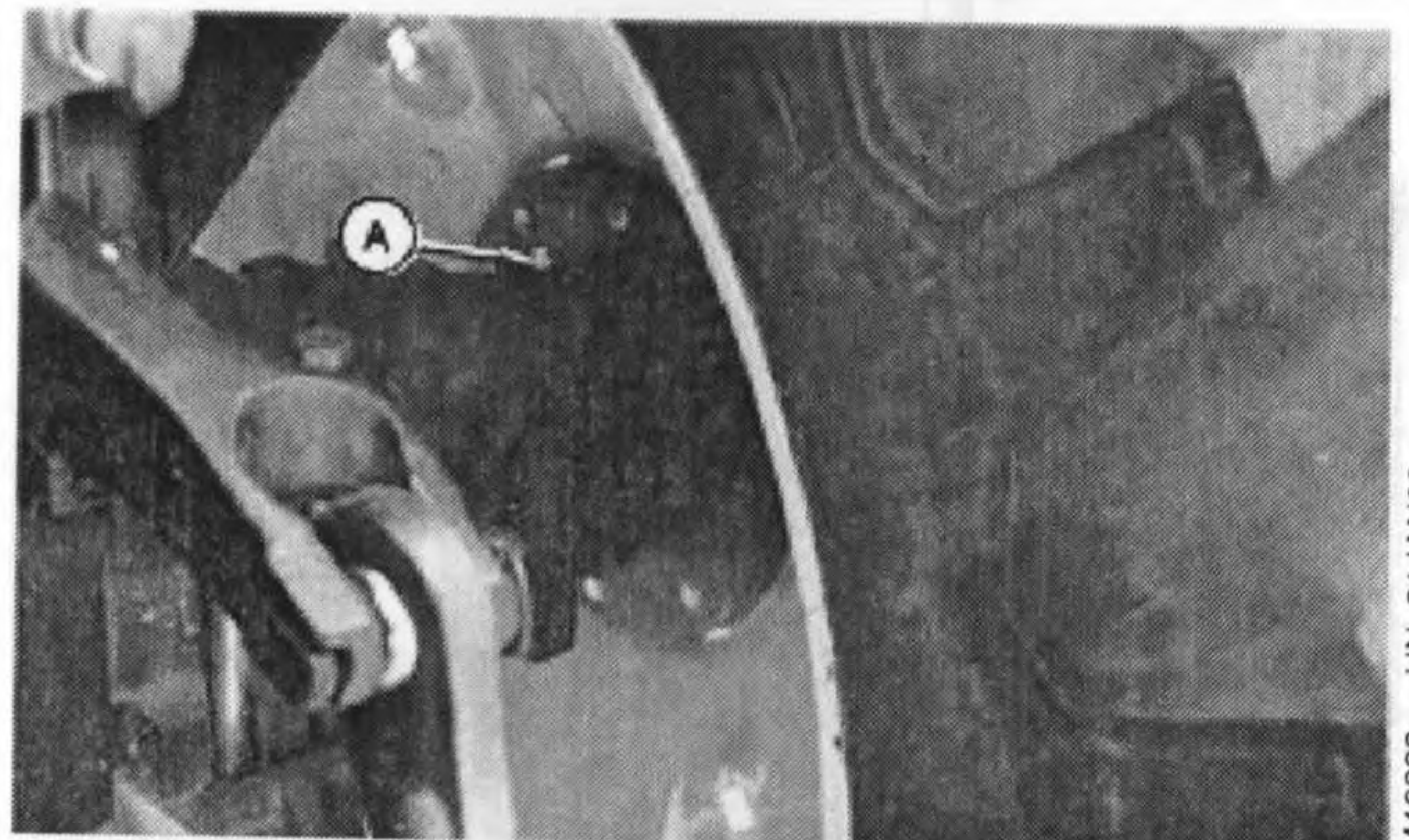
LV,5010S600,B -19-03JUN97-2/2

M46982 -UN-31JAN92

Lubricate Rear Axle Bearings

Lubricate rear axle fittings (A), both sides, with several shots of multi-purpose grease. (See Fuels, Lubricants and Coolant section.)

A—Rear Axle Fittings



MX,LMIP,AA3A -19-10JAN96-1/1

M46983 -UN-31JAN92

Check Engine Idle Speeds

Slow idle speed is 825—875 rpm.

With no load, fast idle speed should be a maximum of 2600 rpm.

If idle speeds are not correct, see your John Deere dealer.

Specification

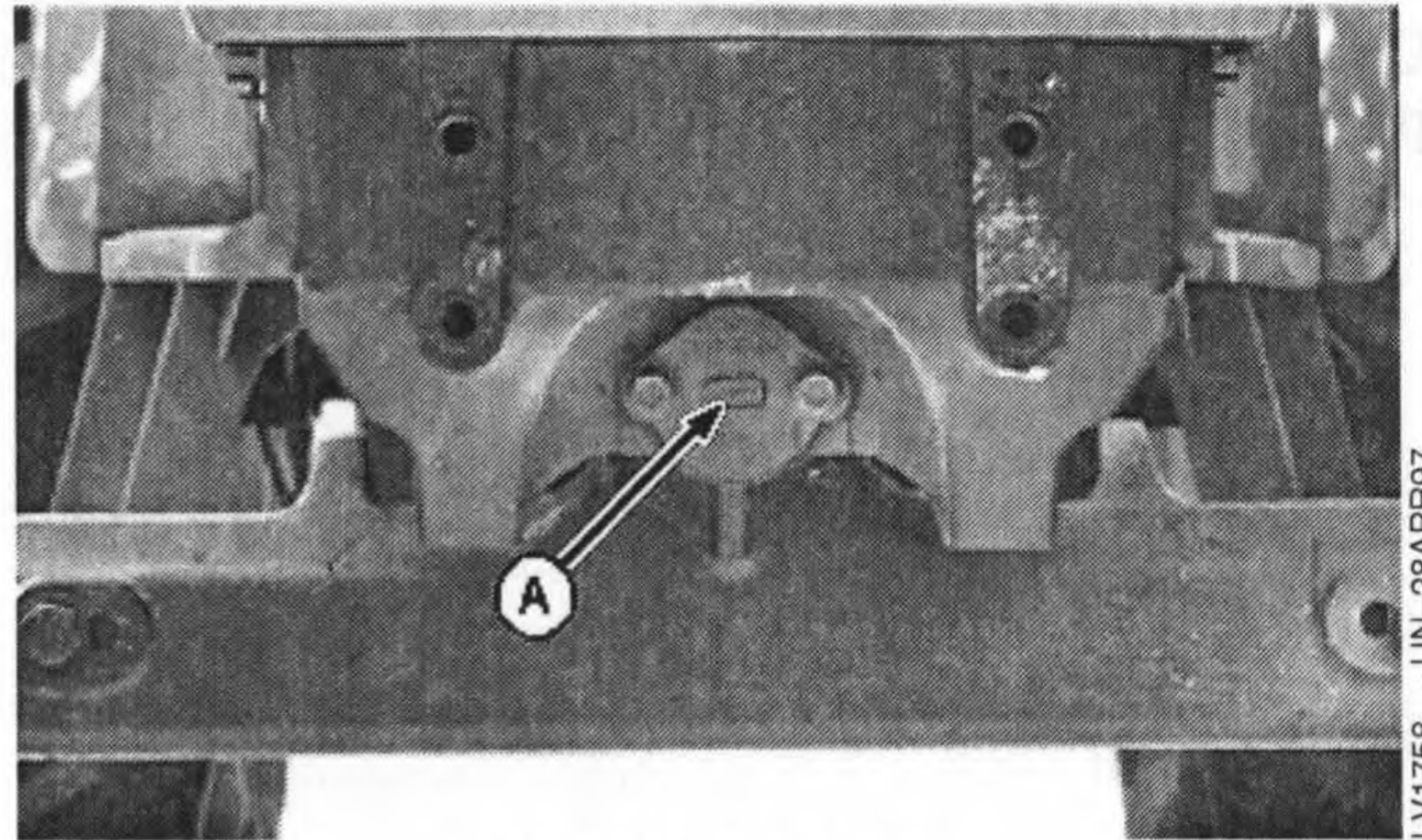
Engine—Slow Idle Speed	825—875 rpm
Engine—Fast Idle (with No Load)	2550—2600 rpm Maximum
Speed	

MX,LMIP,BBA1 -19-03JUN99-1/1

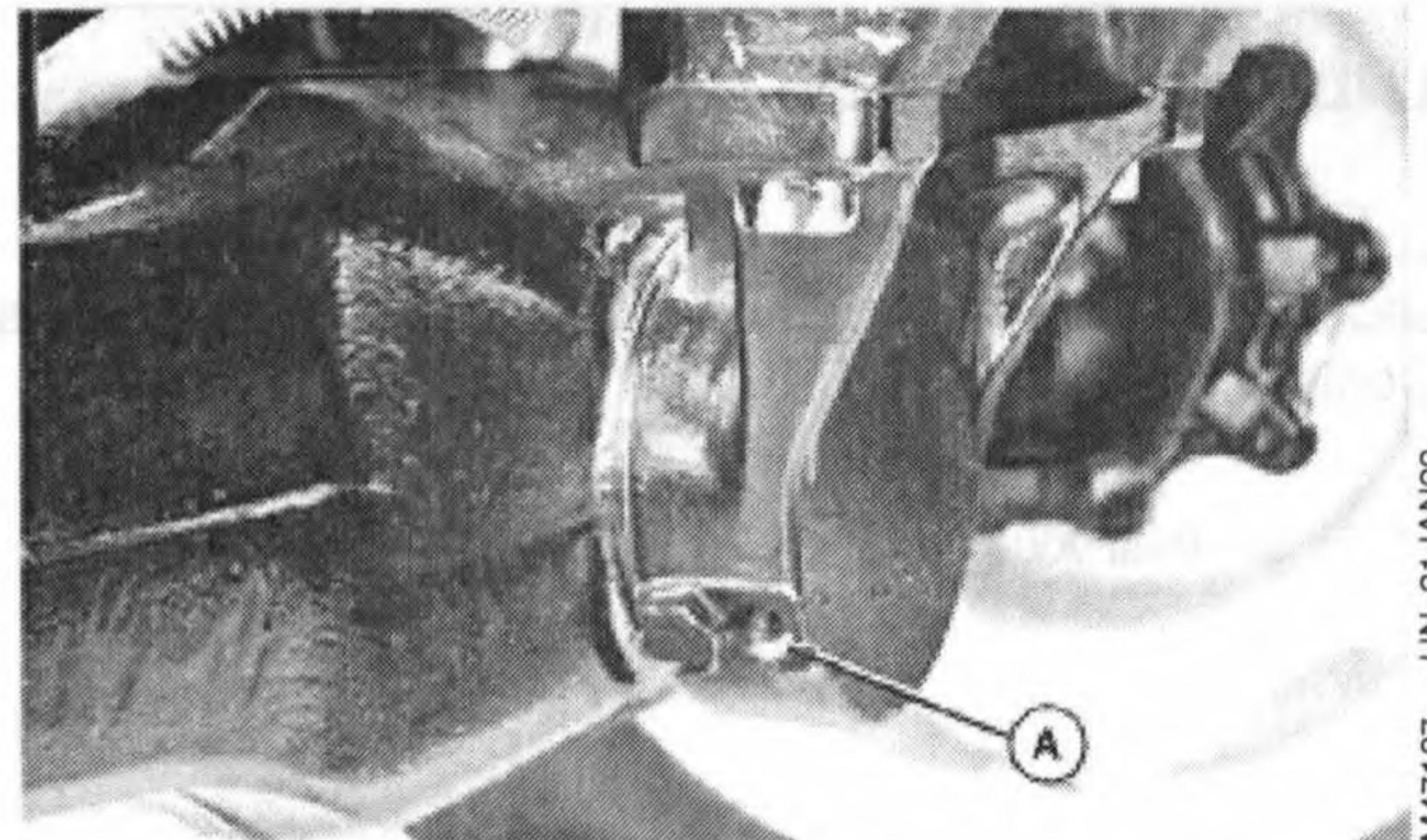
Check Front Axle Pivot Pin

Ask your John Deere dealer to check the front axle pivot pin (A) for correct end play.

A—Front Axle Pivot Pin



Adjustable Front Axle



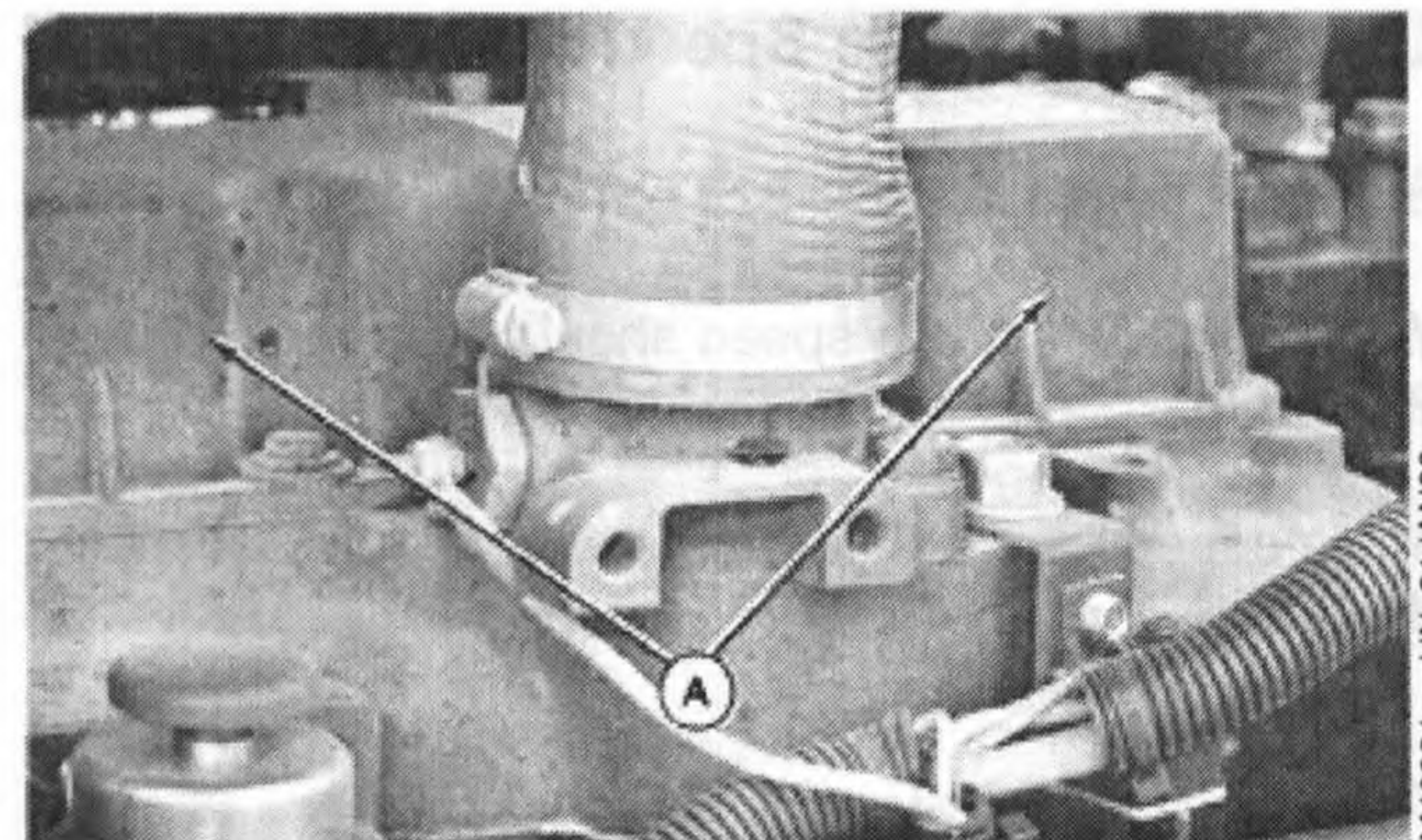
MFWD Axle

LV,5010S600,C -19-03JUN97-1/1

Adjust Engine Valve Clearance

Ask your John Deere dealer to make engine valve (A) clearance adjustment and inspect fuel injectors.

A—Engine Valve Cover



MX,LMIP,CCA1 -19-24JUL95-1/1

Service—1200 Hours

Change Transmission-Hydraulic Oil and Filter

1. Lower rockshaft to remove trapped oil.

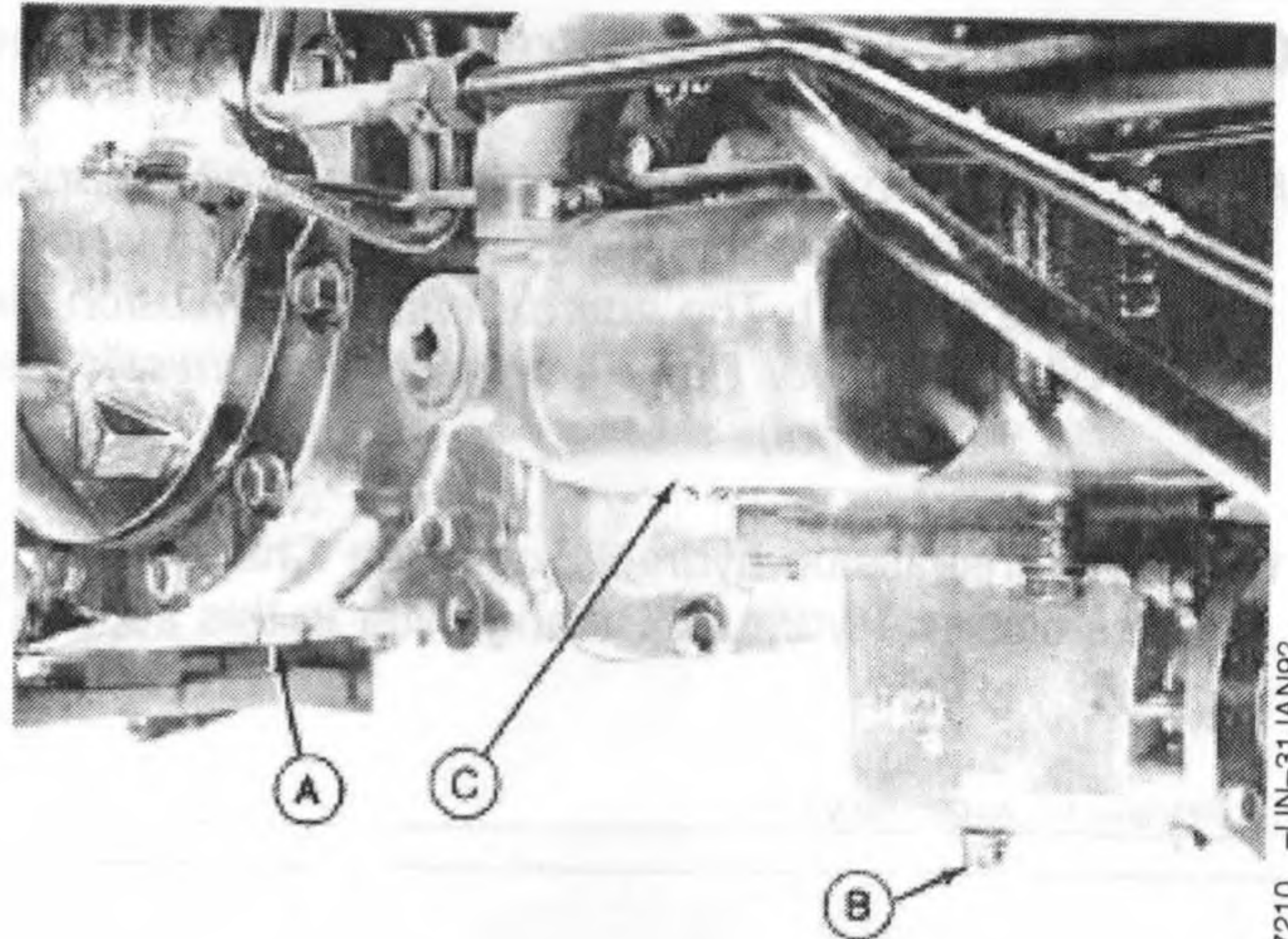
NOTE: The approximate transmission case oil capacity for CollarShift and SyncShuttle™ Transmission is 38 L (10 gal). The approximate transmission case oil capacity for PowrReverser™ Transmission is 42.5 L (11 gal).

2. Remove drain plug from transmission case (A) and drain out oil.
3. If equipped with MFWD axle, also remove drain plug (B) in drop housing.
4. Replace filter (C) while changing oil. Apply a film of oil to new filter gasket and install new filter. Hand tighten only.
5. Fill system with transmission-hydraulic oil. (See Fuels, Lubricants and Coolant section.)

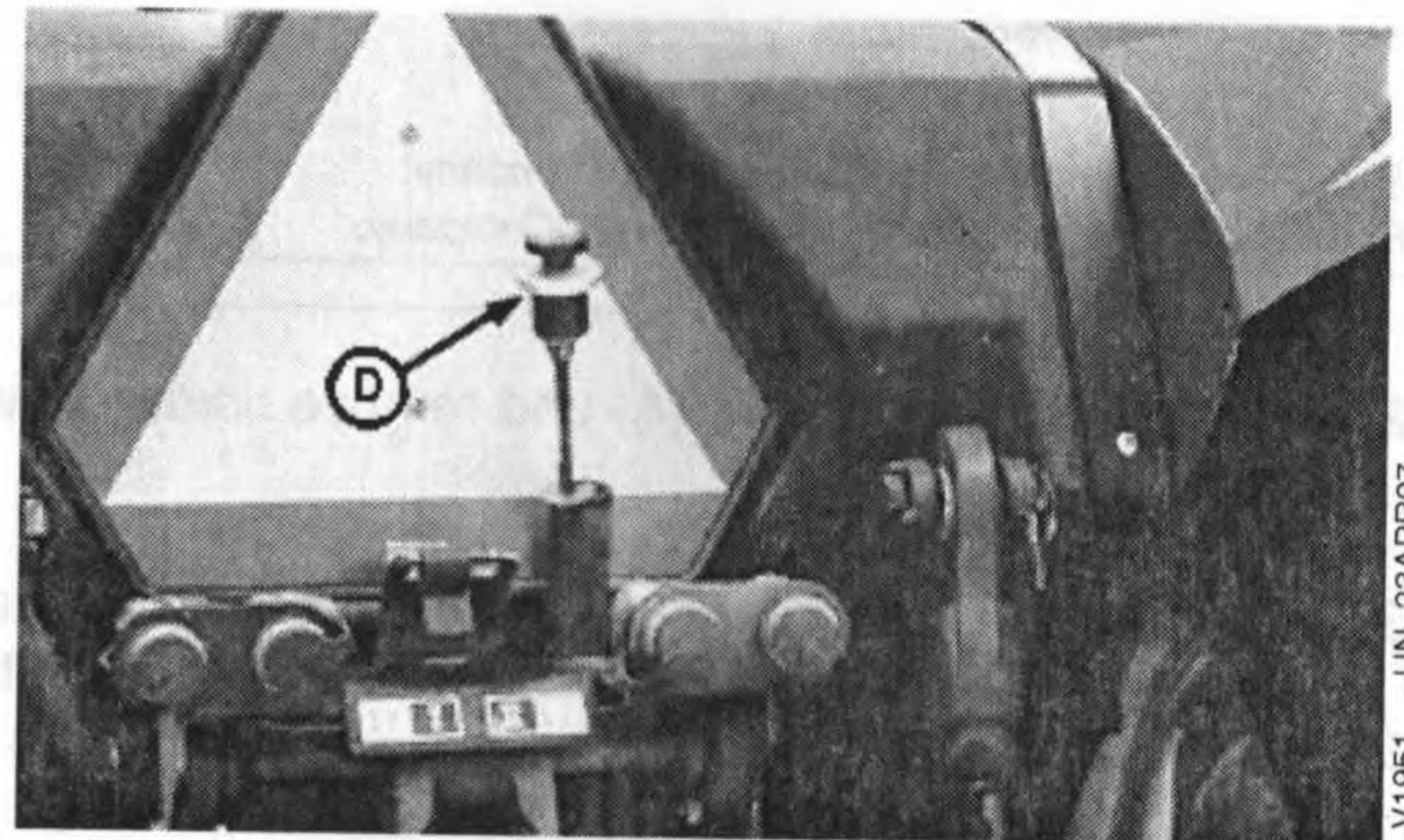
Specification

CollarShift and SyncShuttle™ Transmission Capacity	38 L (10 gal)
PowrReverser™ Transmission Capacity	42.5 L (11 gal)

6. Check oil level at dipstick (D) after filling, and again after operating for five minutes.



M47210 -UN-31JAN92



LV1951 -UN-23APR97

- A—Transmission Case
- B—Drain Plug
- C—Filter
- D—Dipstick

SyncShuttle is a trademark of Deere & Company.
PowrReverser is a trademark of Deere & Company.

LV,5010S12,A -19-10SEP97-1/1

Clean Transmission-Hydraulic Pickup Screen

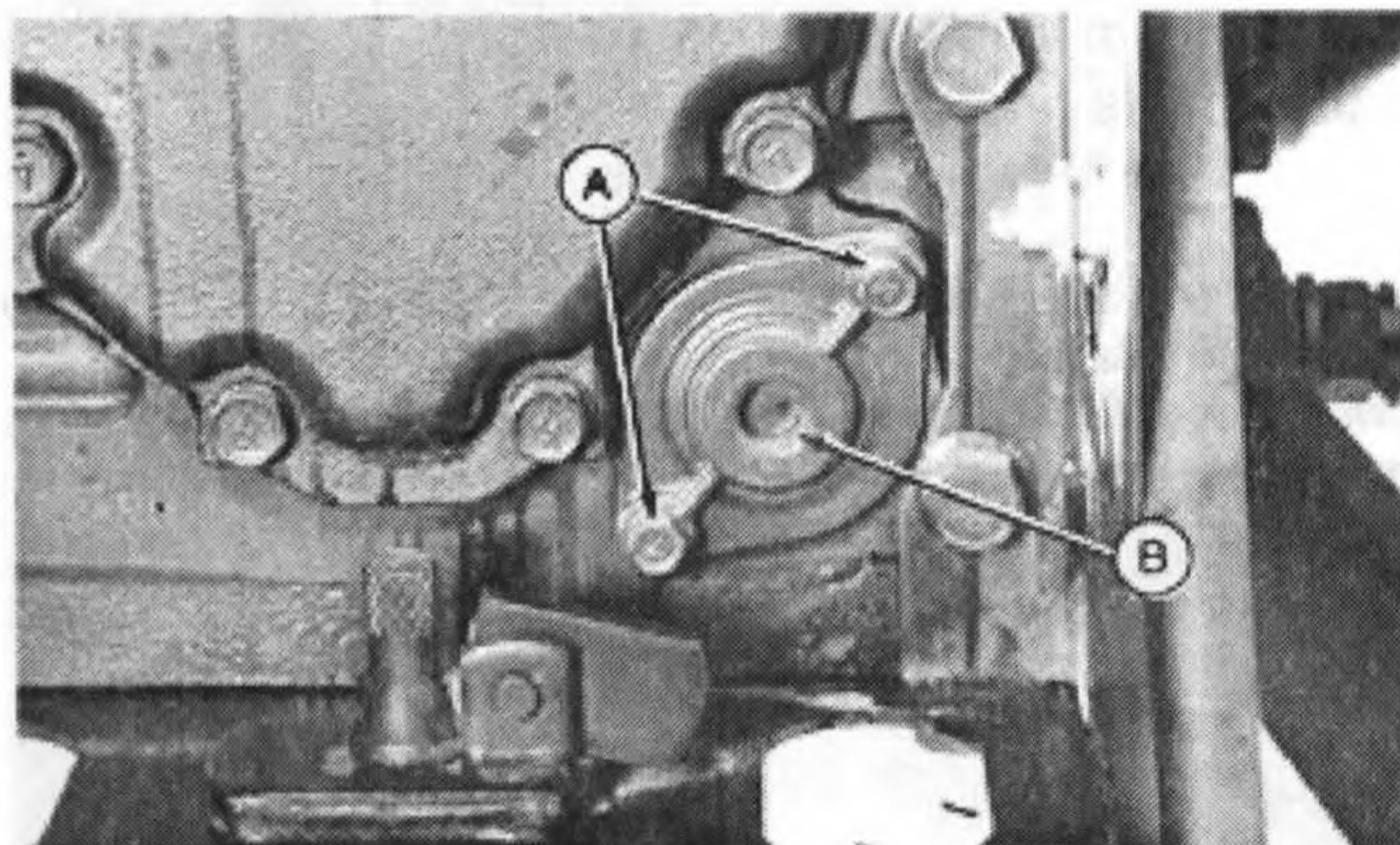
NOTE: The approximate transmission case oil capacity for CollarShift and SyncShuttle™ Transmission is 38 L (10 gal). The approximate transmission case oil capacity for PowrReverser™ Transmission is 42.5 L (11 gal).

1. Drain transmission-hydraulic oil. (See Change Transmission-Hydraulic Oil and Filter in this section.)

*SyncShuttle is a trademark of Deere & Company.
PowrReverser is a trademark of Deere & Company.*

LV,5010S12,B -19-21MAY99-1/3

2. Remove two cap screws (A) and remove screen cover (B).
3. Remove screen and examine it for damage. Replace if necessary. Clean screen in solvent and blow dry with compressed air.
4. Carefully install screen so the front of screen is inserted in hole at front of differential case.
5. Fill system with transmission-hydraulic oil. (See Changing Transmission-Hydraulic Oil and Filter in this section.)

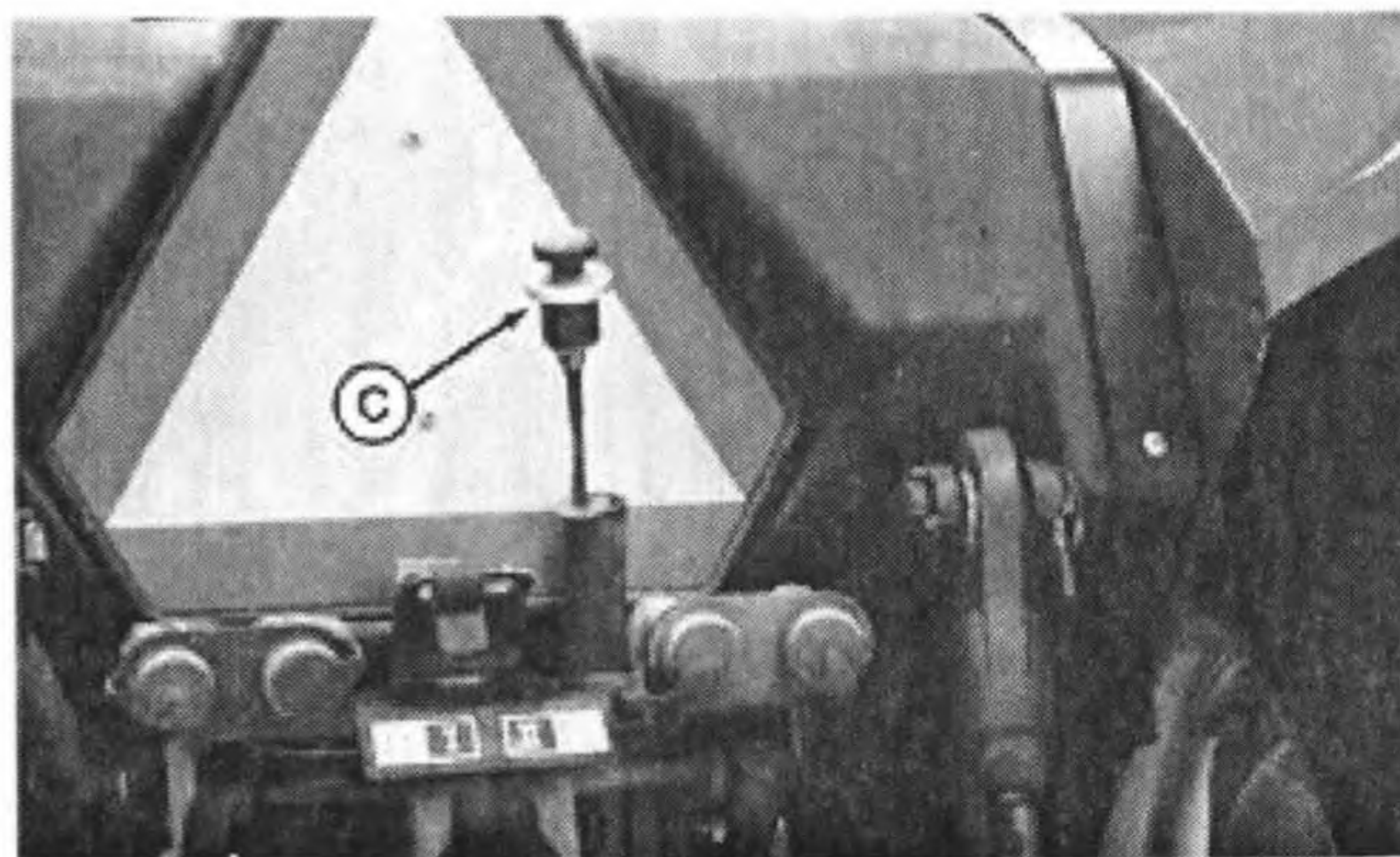


M46986 -UN-31JAN92

LV,5010S12,B -19-21MAY99-2/3

6. Check oil level at dipstick (C) after filling, and again after operating for five minutes.

C—Transmission-Hydraulic Oil Dipstick



M46987 -UN-31JAN92

LV,5010S12,B -19-21MAY99-3/3

Service—Annually

Change Engine Oil and Filter

Change engine oil and filter at least once a year. See Change Engine Oil and Filter in Service—100 Hours section.

LV,5010SAN,A -19-09SEP97-1/1

Replace Air Cleaner Elements

IMPORTANT: If tractor is to be stored longer than 30 days, follow storage instructions listed in Storage section.

Replace primary and secondary air cleaner elements at least once a year. (See Service Air Cleaner in Service section.)

LV,5010SAN,B -19-02JUN99-1/1

Service—2 Years/2000 Hours

Flush Cooling System

NOTE: 5210 and 5310 tractors shown. 5410 and 5510 are similar.

5410 and 5510 block drain plug is located above oil filler.

For efficient operation, drain old coolant, flush the entire system, and fill with clean antifreeze solution at least once every two years.



CAUTION: DO NOT remove radiator cap or drain coolant until coolant is cold (temperature gauge should be below the green striped zone). Always loosen radiator cap or drain cock slowly to relieve any excess pressure.

1. Drain coolant - Remove radiator cap (A). Open drain valve (B) on radiator and drain coolant from radiator. Drain coolant from engine block:

5210 and 5310: Remove cold start aid switch (C).

5410 and 5510: Open drain plug on left-hand side of engine block.

IMPORTANT: Thermostat must be removed to ensure a thorough flush.

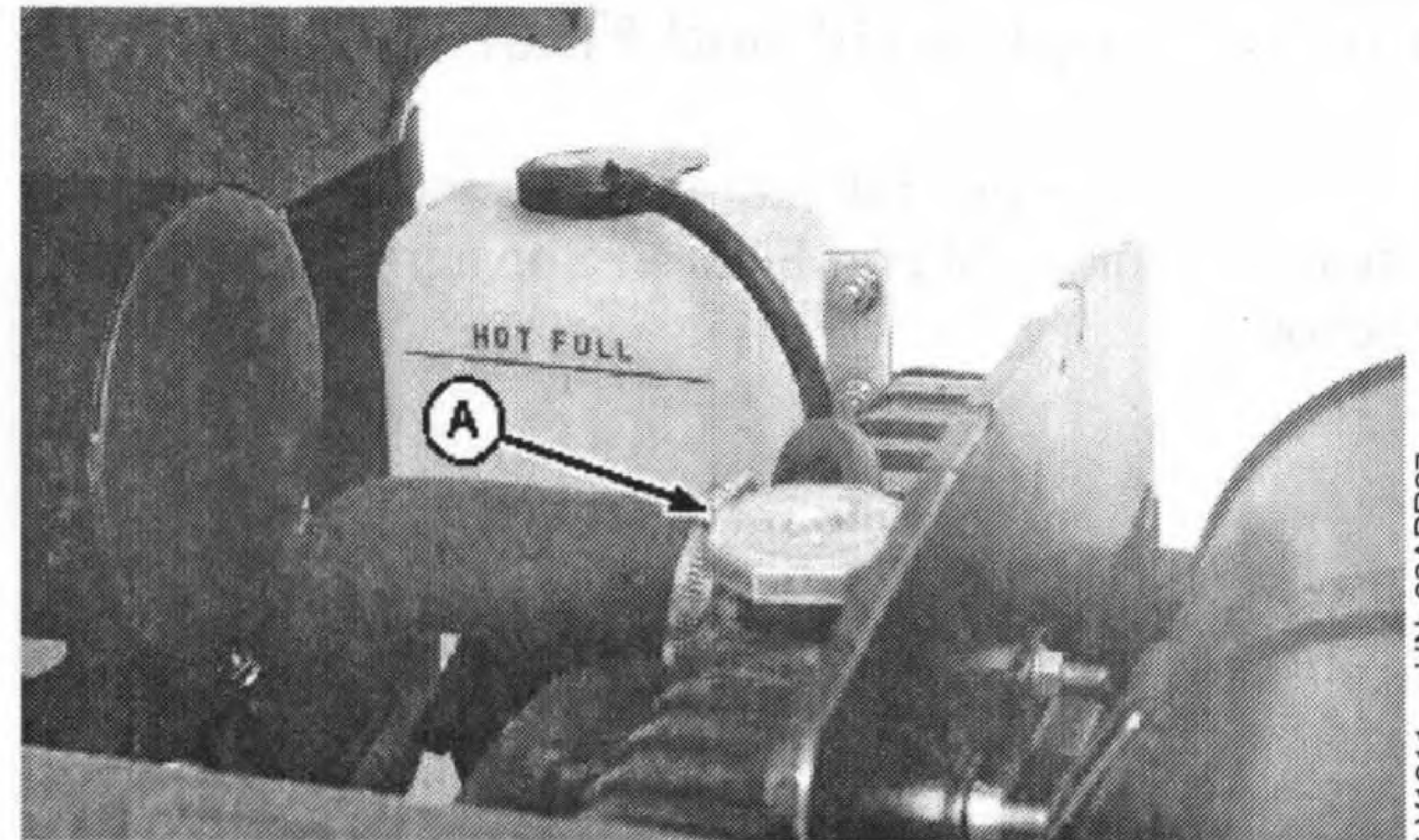
2. Remove thermostat cover (D), remove thermostat, and install cover (without thermostat). Tighten cap screws to specification.

Specification

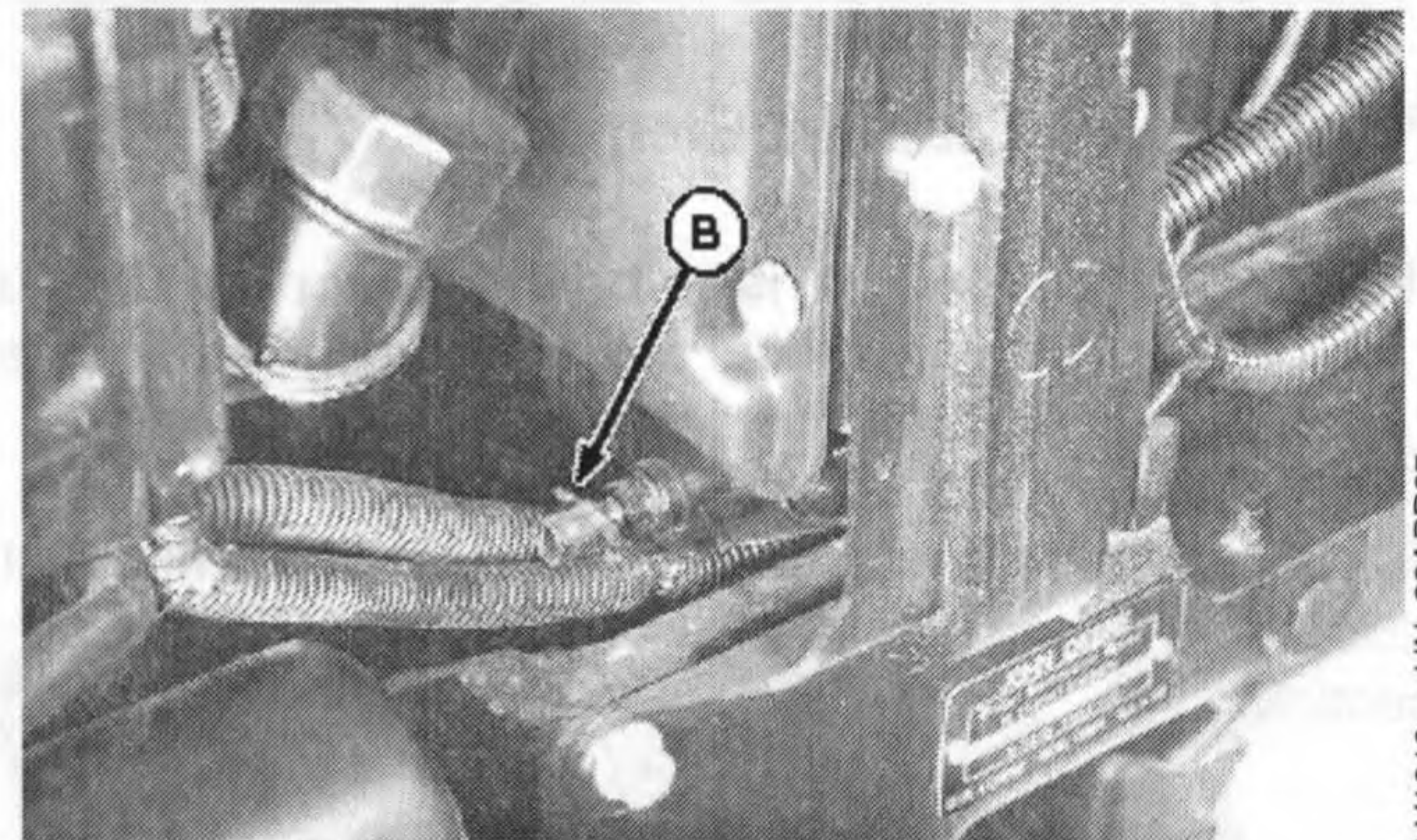
Thermostat Cover Cap Screws 47 N•m (35 lb-ft)
Torque

3. Flush system with water - Close all drain valves/plugs and fill system with clean water. Run engine about 10 minutes to stir up possible rust or sediment. Stop engine and drain water from system before rust and sediment settle.

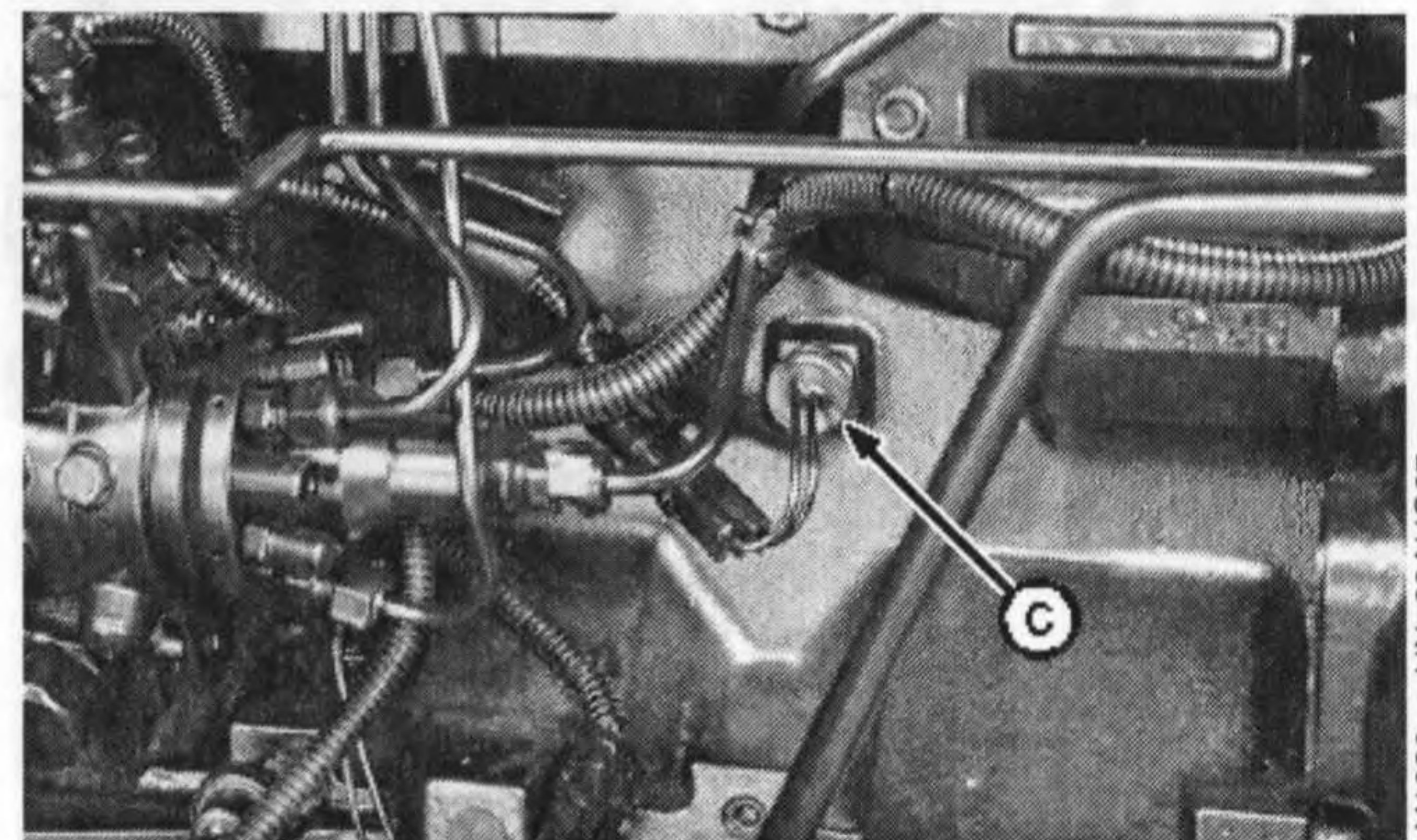
A—Radiator Cap
B—Drain Valve
C—Cold Start Aid Switch (5210 and 5310)
D—Thermostat Cover



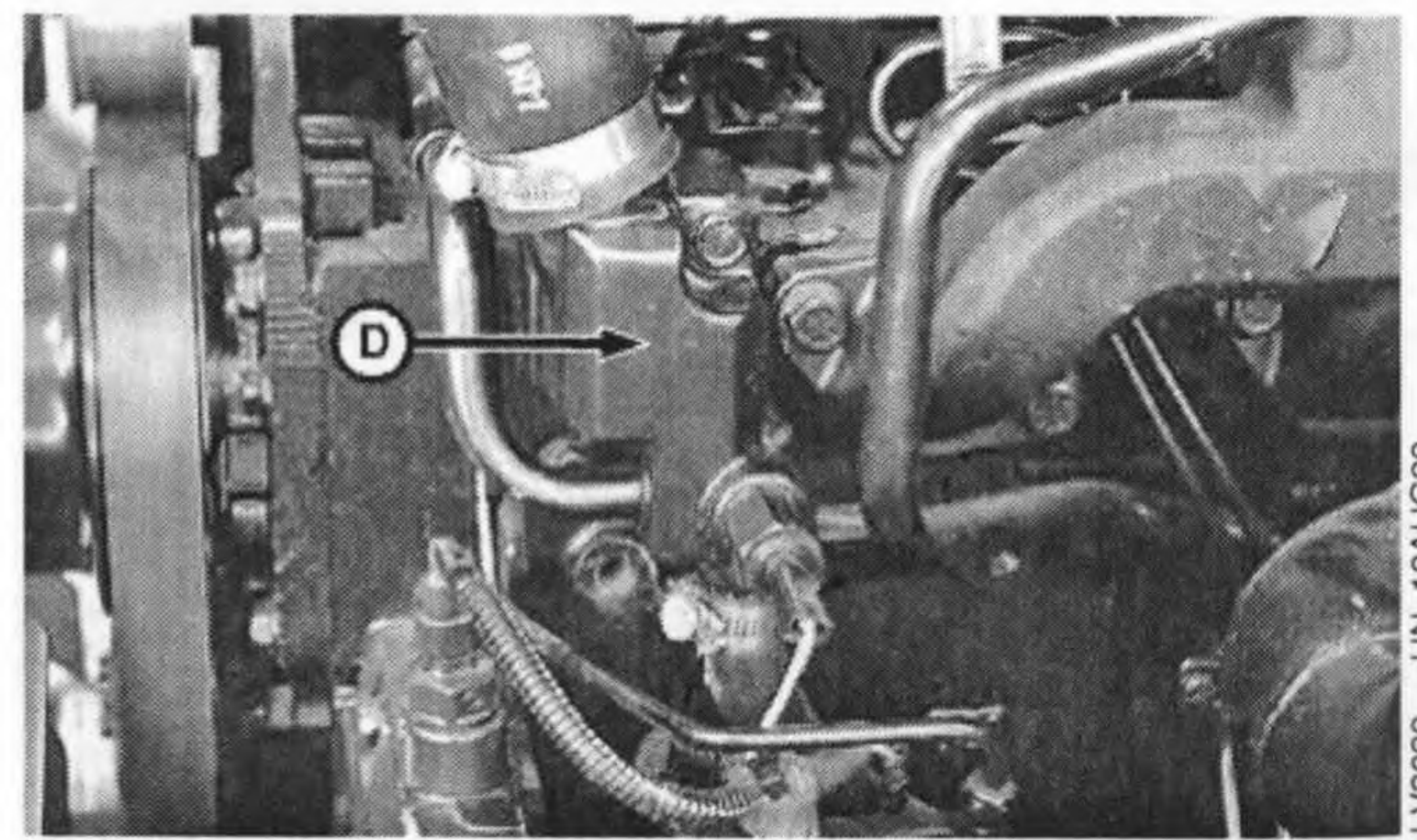
LV1911 -UN-23APR97



LV1912 -UN-23APR97



LV1930 -UN-28AUG97



LV3039 -UN-19AUG99

Continued on next page

LV,5010S2Y,B -19-02JUN99-1/3

4. Flush system with radiator cleaner - Close all drain valve/plugs, reinstall coolant start aid switch, and fill the cooling system with a good commercial radiator cleaner and water. Follow instructions provided with cleaner. Stop engine and immediately drain system.
5. Flush system with water - Close all drain valves/plugs, reinstall coolant start aid switch, and fill with clean water to flush the system. Run the engine about 10 minutes, then drain out flushing water.

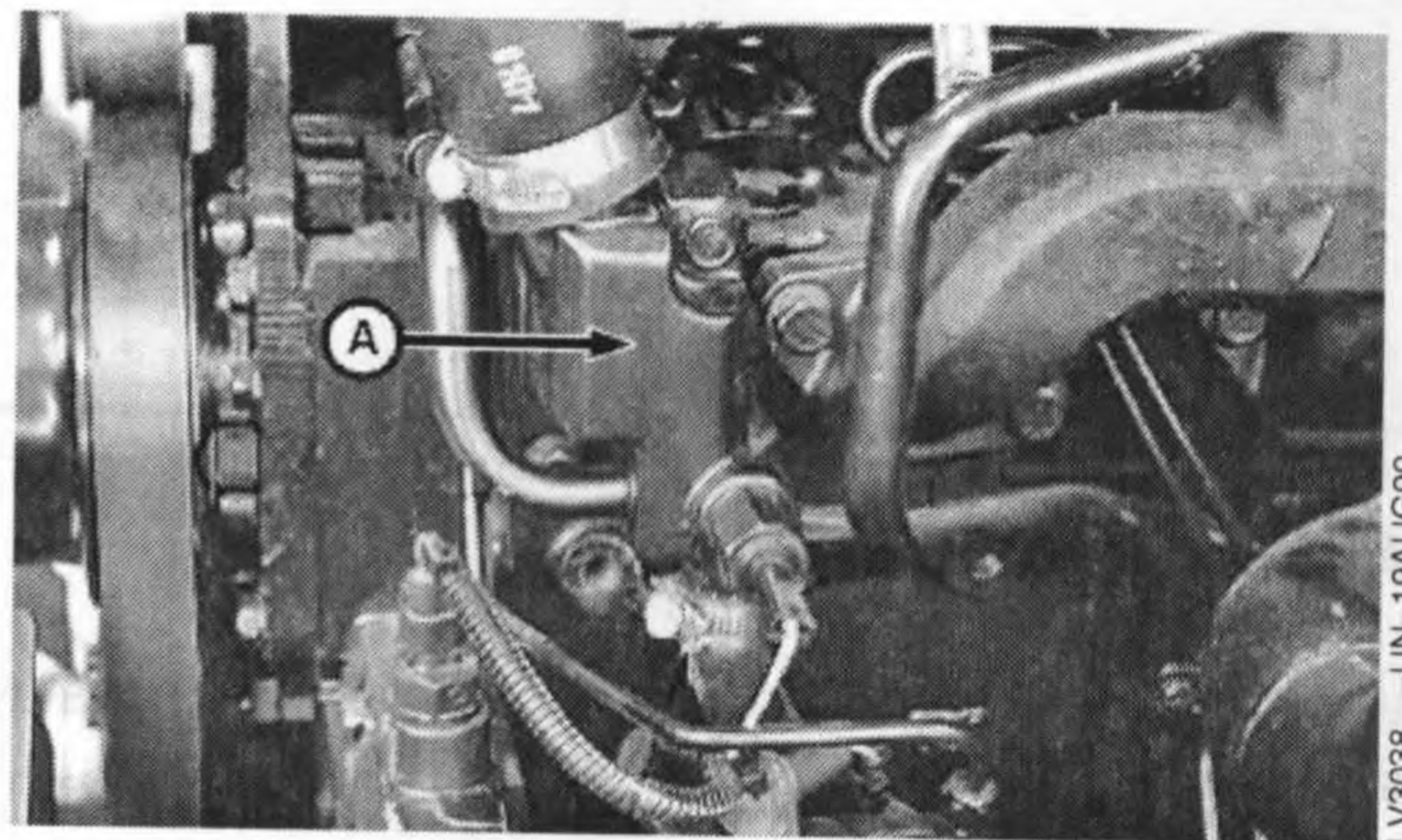
LV,5010S2Y,B -19-02JUN99-2/3

6. Remove thermostat cover (A) and clean off the gasket material. Apply gasket sealant to new gasket and install thermostat and cover. Tighten cap screws to specification.

Specification

Thermostat Cover Cap Screws..... 47 N•m (35 lb-ft)
Torque

7. Fill with fresh coolant - Close all drain valves/plugs and fill with a mixture of antifreeze, soft water, and coolant conditioner as specified in the Fuels, Lubricants, and Coolant section.
8. Check coolant level - Fill radiator to the top of the filler neck and fill the recovery tank to the "LOW" mark. Run the engine until operating temperature is reached. Let the engine cool (preferably overnight) and recheck the coolant level. Coolant level with a cold engine should be at the "LOW" mark. An engine at operating temperature should have a coolant level at the "FULL" mark. When filling the cooling system it may require several operating/cooling periods to stabilize the coolant level in the system. Add make-up coolant to the recovery tank as needed to bring the coolant level to the correct mark.



LV3038 -JUN-19AUG99

A—Thermostat Cover

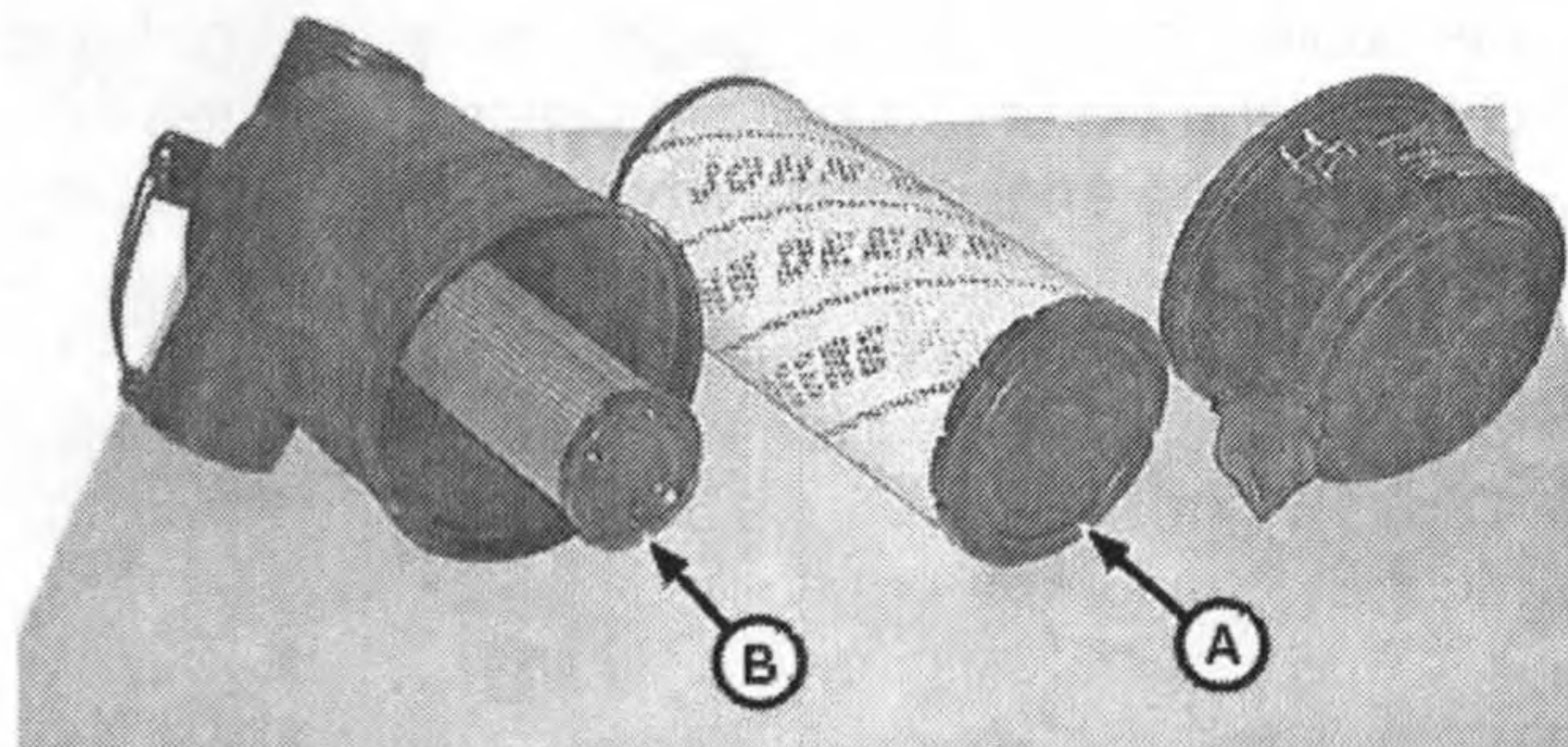
LV,5010S2Y,B -19-02JUN99-3/3

Service—As Required

Service Air Cleaner

Under dusty conditions, it may be necessary to service air cleaner more often than every 250 hours. Whenever dirty primary element is indicated by loss of power, excessive smoke or air restriction indicator light, replace primary element (A). (See Service Air Cleaner in Service—250 Hours section.)

A—Primary Element
B—Secondary Element



LV3025 -UN-17AUG99

LV,5010SAR,A -19-10AUG99-1/1

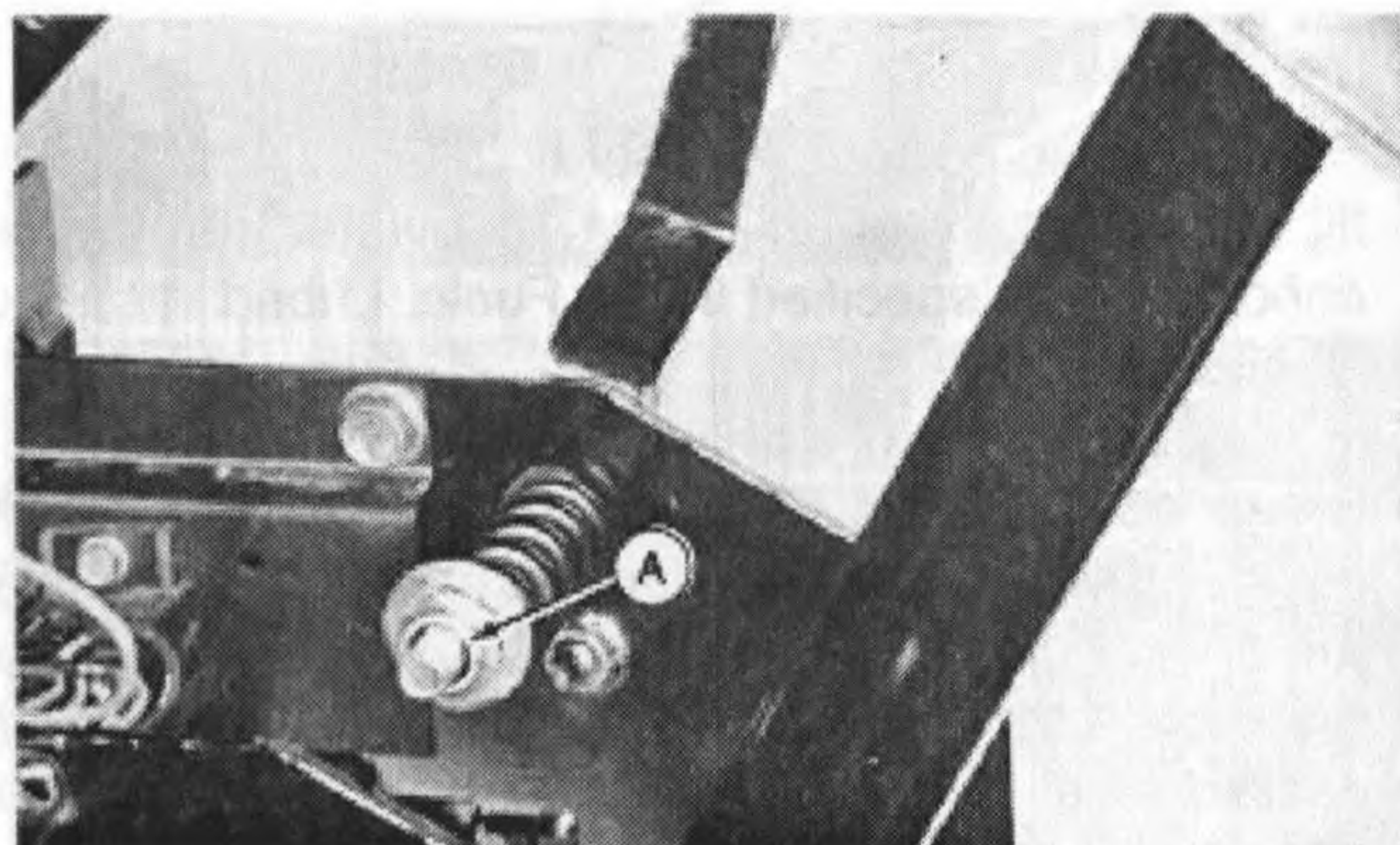
Adjust Throttle Friction

When throttle linkage becomes loose and does not stay in set position, adjust as follows:

NOTE: Instrument panel removed for illustration purpose.

1. Remove key switch panel.
2. Adjust spring tension by loosening or tightening lock nut (A) until throttle lever movement is smooth throughout range of travel with only slight drag.

A—Throttle Lever Lock Nut



LV407 -UN-18FEB92

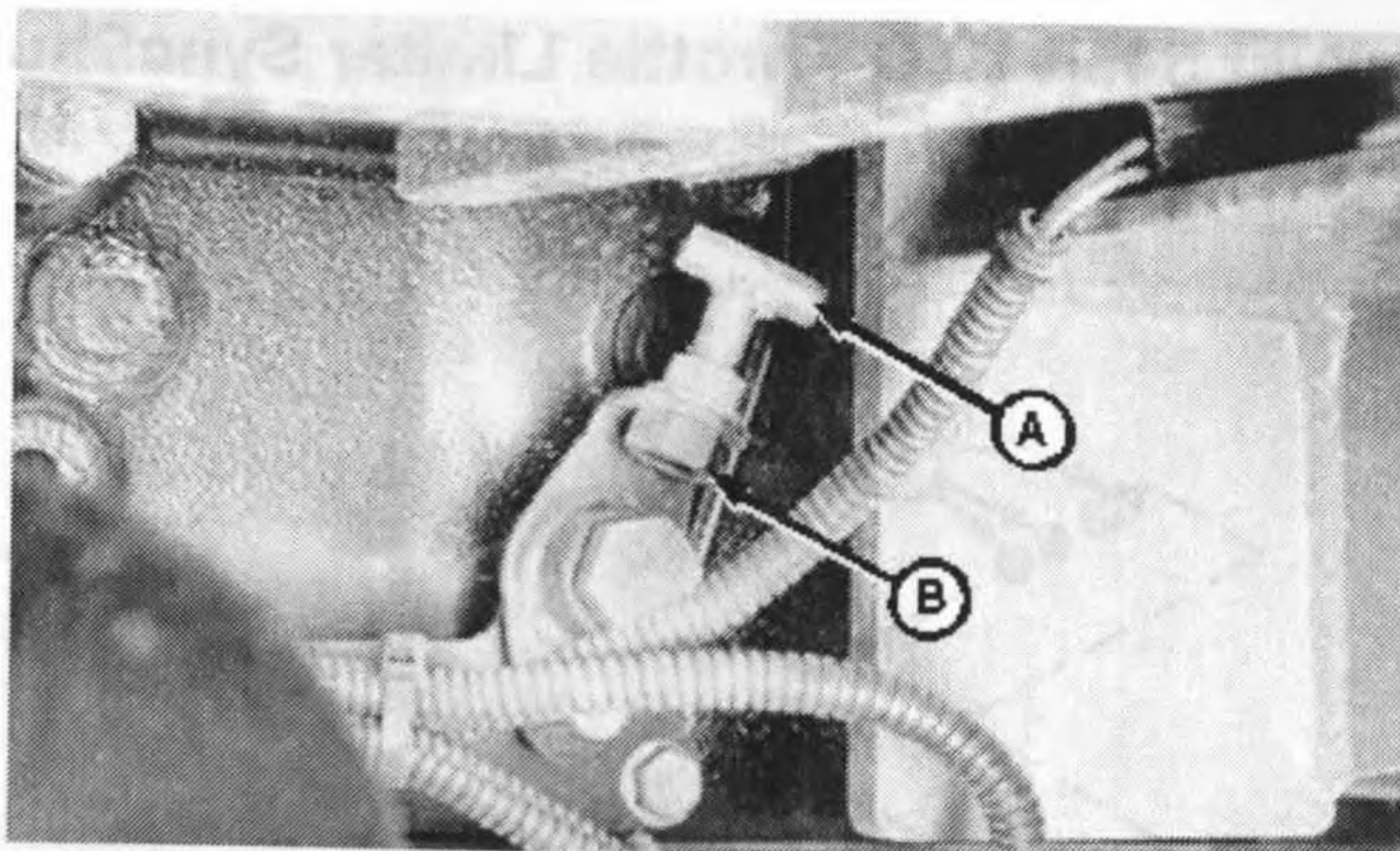
MX,LMIP,NNA1 -19-03JUN97-1/1

Adjust 540E PTO Throttle Limiter SyncShuttle™—Open Station

With no load, engine rpm should be 1850—1900 with hand throttle lever forward and no load. Adjust T-bolt (A) under foot throttle and tighten jam nut (B).

Load engine to 1700 prm to obtain 540 PTO rpm in 540E position.

A—T-Bolt
B—Jam Nut



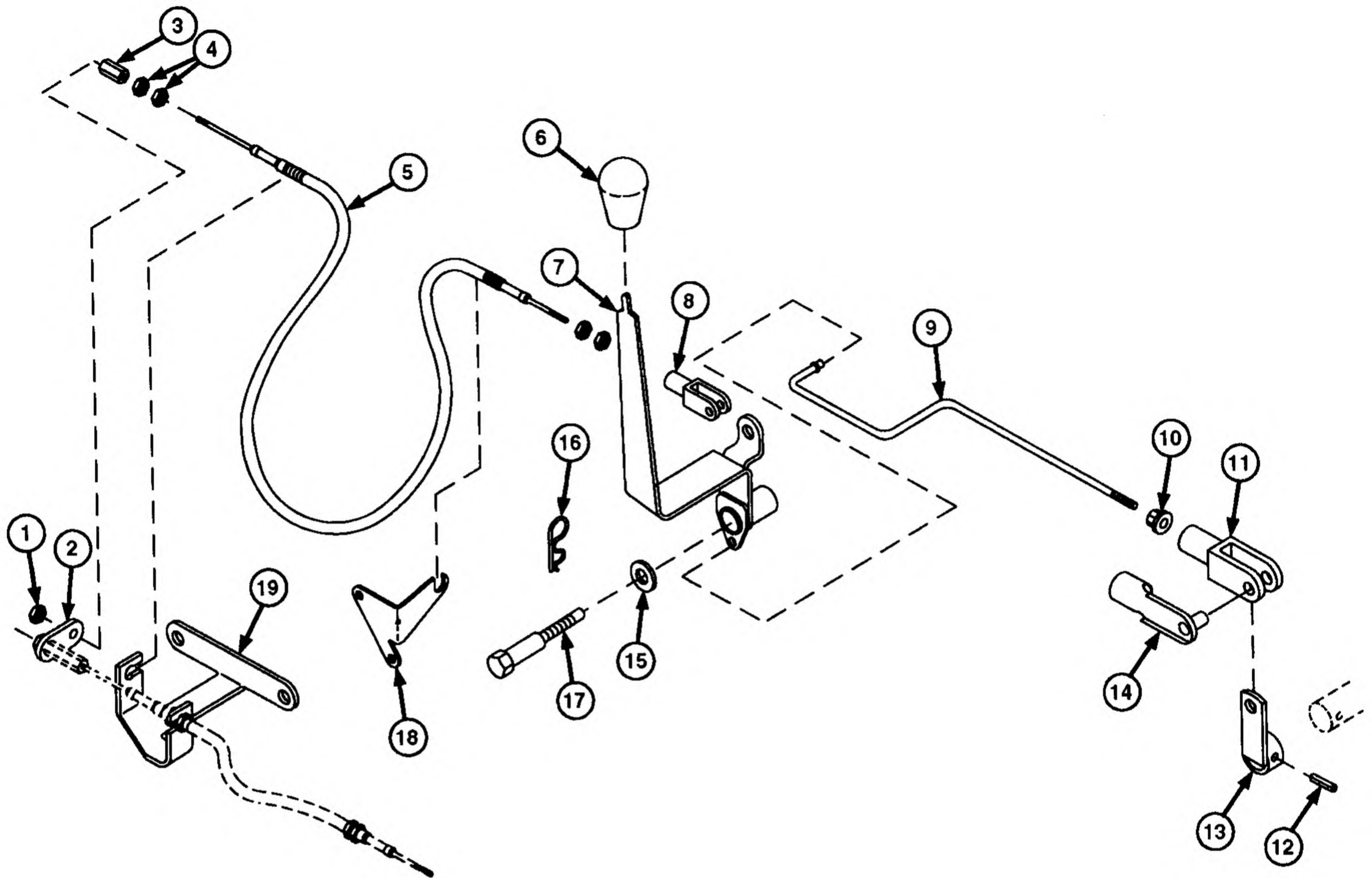
Right-Hand Side—Under Foot Throttle

SyncShuttle is a trademark of Deere & Company

LV,5010SAR,C -19-10SEP97-1/1

LV1564 -UN-22MAY96

Adjust 540E PTO Throttle Limiter SyncShuttle™—Cab



1—Nut
2—Plate
3—Adjustment Nut
4—Nut (4 used)
5—Control Cable

6—Knob
7—Lever
8—Yoke
9—Rod
10—Nut

11—Yoke
12—Pin
13—Arm
14—Spring Locking Pin
15—Washer

16—Retaining Clip
17—Bolt
18—Bracket
19—Control Bracket

1. Remove spring locking pin (14) and disconnect yoke (11) from arm (13).
2. Shift arm (13) to forward position.
3. Engine rpm should be 1850—1900 with lever (7) forward and no load.

4. Adjust yoke (11) so spring locking pin (14) aligns with hole in yoke and arm (13). Install spring locking pin and tighten nut (10).
5. Load engine to 1700 prm to obtain 540 PTO rpm in 540E position.

Service

Service Tractor Safely



LV1701 -JUN-26AUG97

Open Station Tractor Shown

Disengage power to attachments and stop engine before making any repairs or adjustments.

Do not change engine governor setting or overspeed engine.

Keep the vehicle and attachments in good operating condition.

Keep safety devices in place and in working condition.

Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

Before you work on any part of the engine, stop the engine, and let it cool. Hot engine parts can burn skin on contact.

Never run engine unless gear shift lever or Forward-Neutral-Reverse lever (PowrReverser™ Transmission) is in park position.

Be careful to prevent clothing, jewelry, or long hair from getting caught in the fan blades, drive belts, or any other moving engine parts.

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

PowrReverser is a trademark of Deere & Company.

LV,5010S,A -19-09SEP97-1/1

Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



DX,AIR -19-17FEB99-1/1

TS220 -UN-23AUG88

Clean Vehicle of Hazardous Pesticides



CAUTION: During application of hazardous pesticides, pesticide residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous pesticides.

When exposed to hazardous pesticides, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

DX,CABS2 -19-03MAR93-1/1

Engine Break-In Oil

New engines are filled at the factory with John Deere ENGINE BREAK-IN OIL. During the break-in period, add John Deere ENGINE BREAK-IN OIL as needed to maintain the specified oil level.

Change the oil and filter after the first 100 hours of operation of a new or rebuilt engine.

If engine has been under light load during the first 100 hours of operation, continue to use ENGINE BREAK-IN OIL for the first 2—3 oil changes.

If John Deere ENGINE BREAK-IN OIL is not available, use a diesel engine oil with oil viscosity based on the expected air temperature range, and meeting one of the following:

- API Service Classification CG-4
- API Service Classification CF-4
- ACEA Specification E3
- ACEA Specification E2

After the break-in period, use John Deere PLUS-50® oil or other diesel engine oil as recommended in this manual.

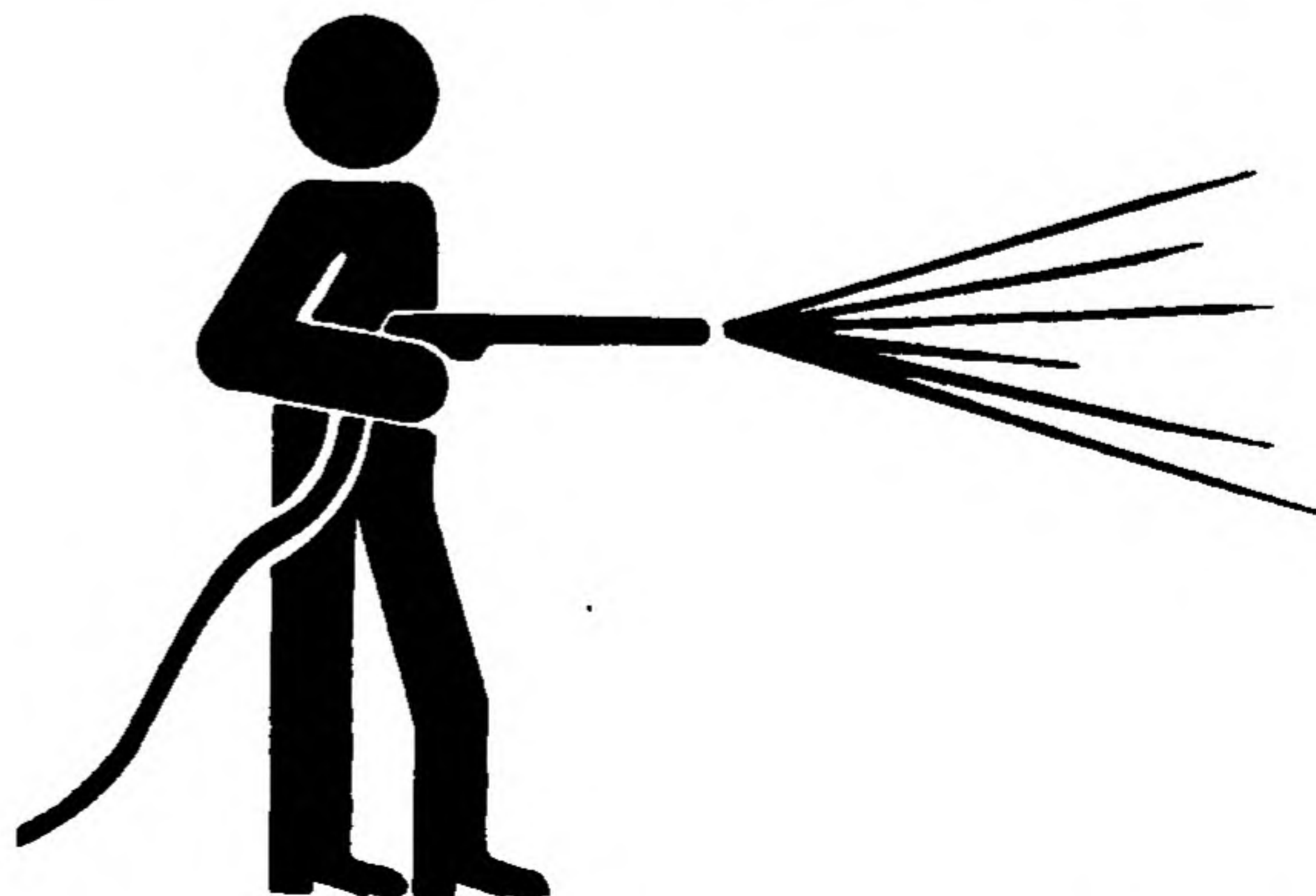
IMPORTANT: Do not use John Deere PLUS-50® oil or engine oils meeting API CG4 or API CF4 during the first 100 hours of operation of a new or rebuilt engine. These oils will not allow the engine to break-in properly.

PLUS-50 is a trademark of Deere & Company

AG,OUO1032,1417 -19-02JUN99-1/1

Using High-Pressure Washers

IMPORTANT: Directing pressurized water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure, and spray at a 45 to 90 degree angle.



T6642EJ -UN-18OCT88

FX.CLEAN -19-06FEB95-1/1

Additional Service Information

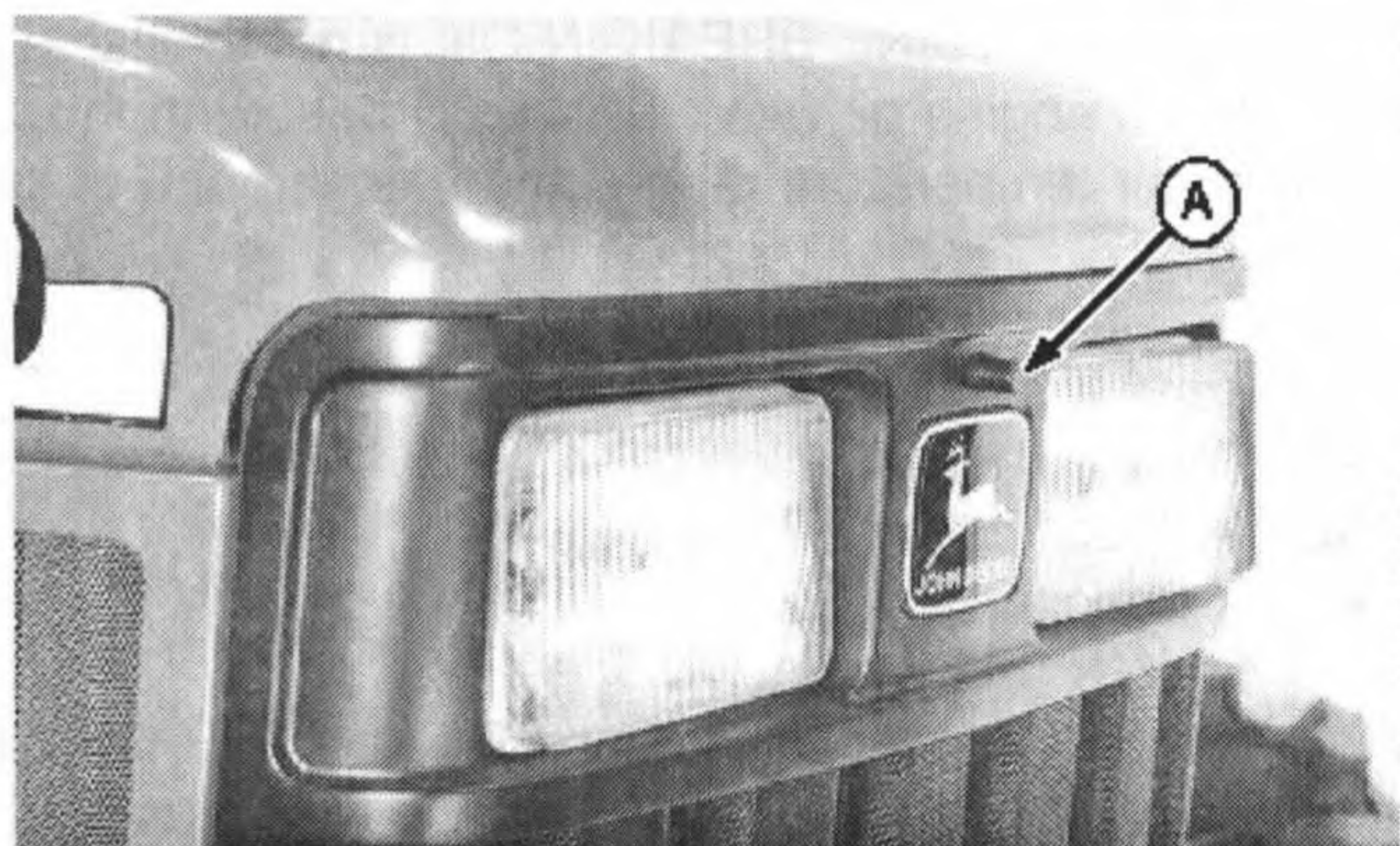
This is not a detailed service manual. It contains only information needed for operation and routine maintenance. If you want more detailed service information, use the form in the back of this manual to order a Parts Catalog and/or a Technical Manual.

MX,SEIP,AA2 -19-24JUL95-1/1

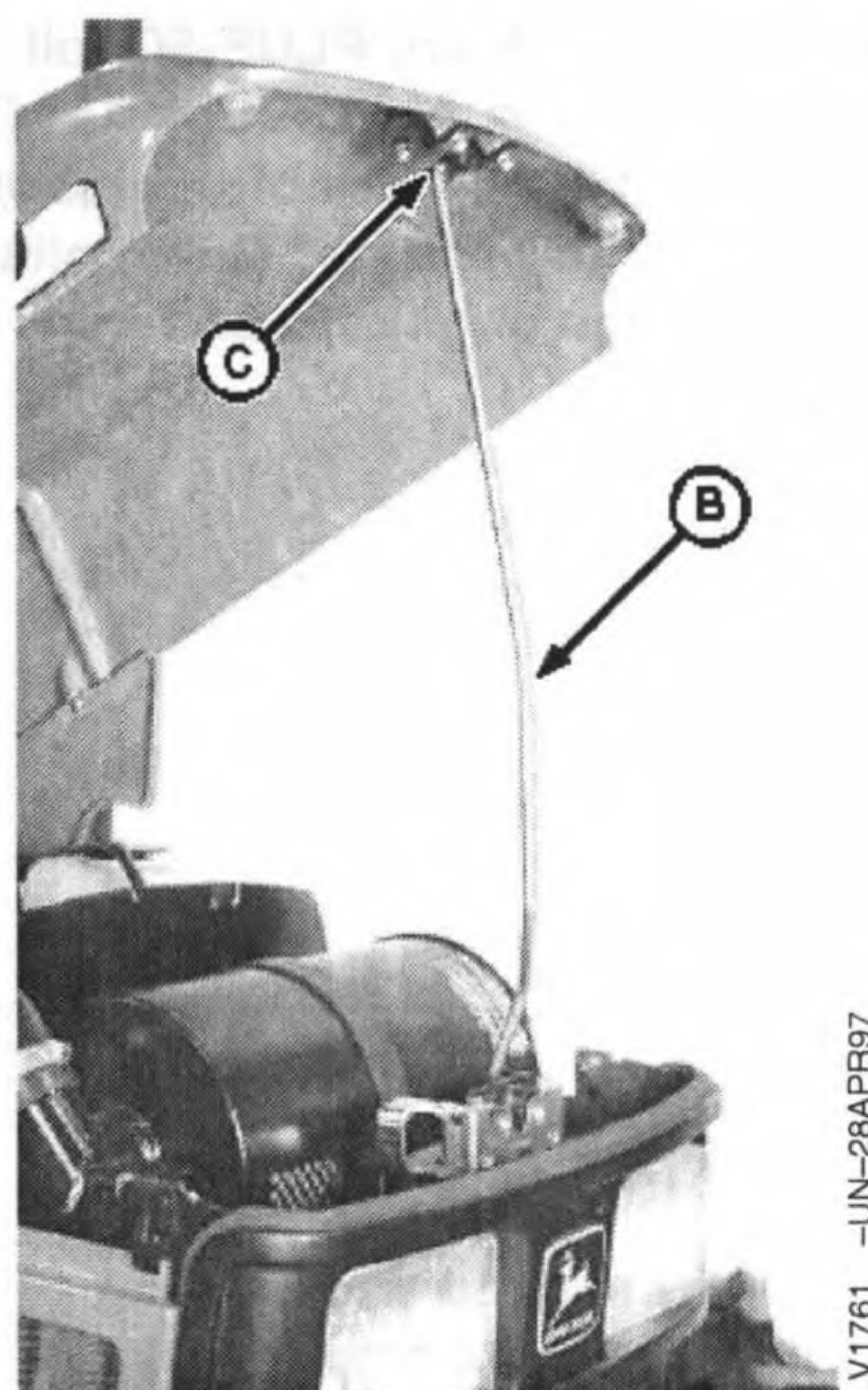
Opening Hood

1. Push hood latch release (A) in to unlock hood.
2. Raise hood and unlatch the support rod (B).
3. Insert the hood support rod (B) into the hood latch (C) to hold hood in raised position.

A—Hood Latch Release
B—Hood Support Rod
C—Hood Latch



LV1760 -UN-28APR97



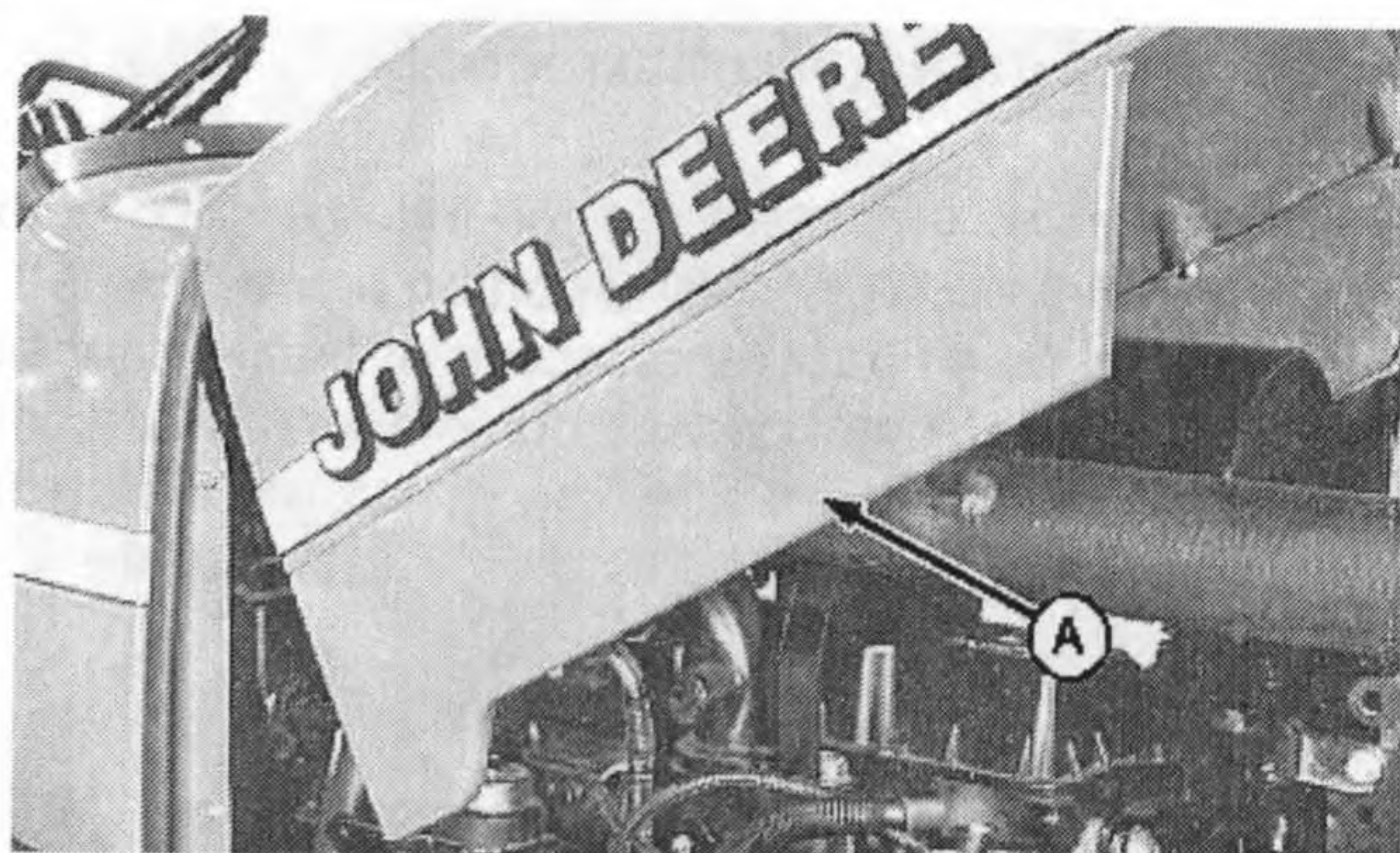
LV1761 -UN-28APR97

LV,5010S,B -19-03JUN97-1/1

Removing Hood

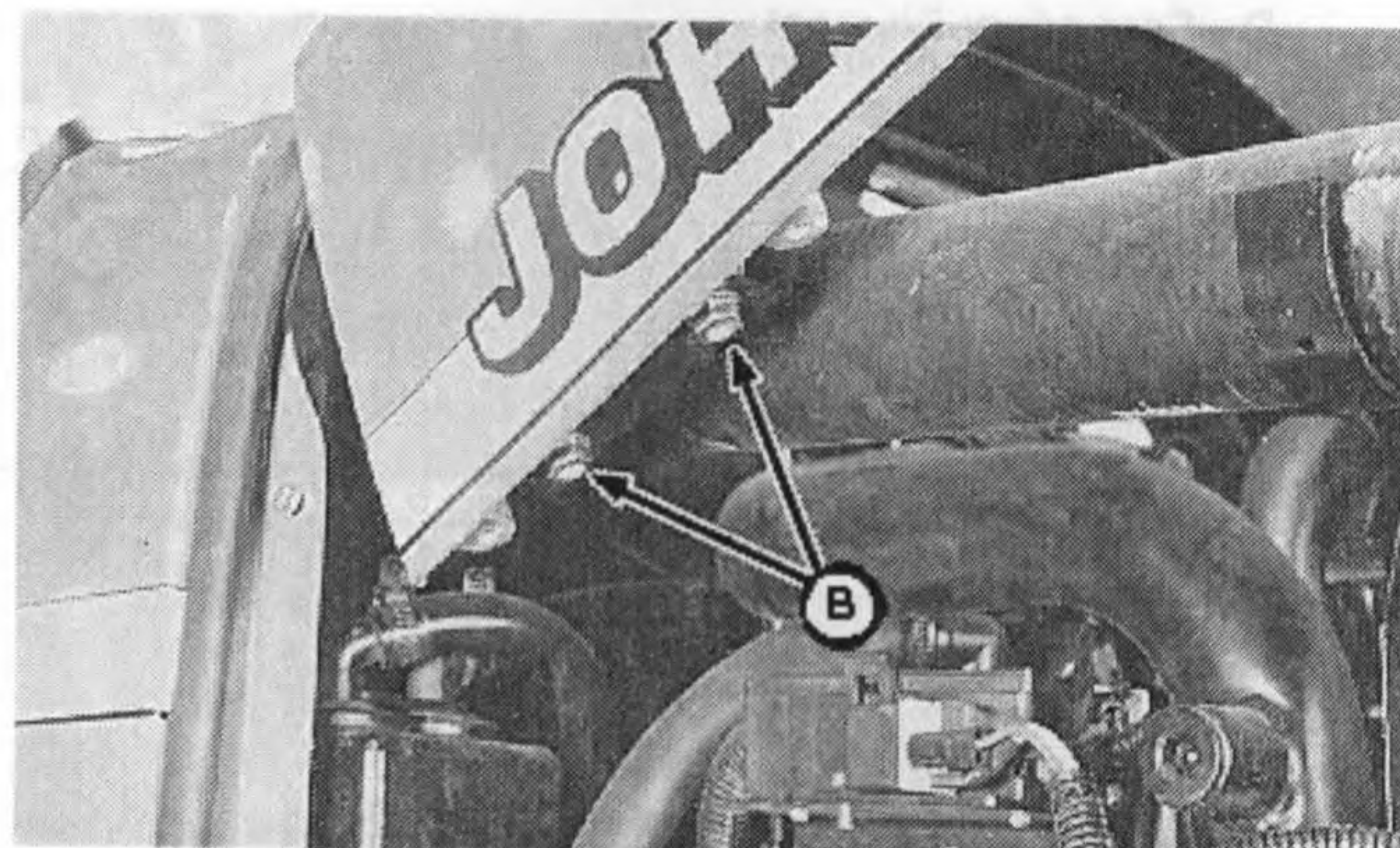
1. **5210 and 5310:** Remove four cap screws and side panel (A), from each side of hood.
- 5410 and 5510:** Remove five cap screws and side panel (A), from each side of hood.
2. Remove nuts (B) from each side of the front hood hinge.
3. Release the hood support rod from the hood latch and secure the rod in the stored position.
4. Remove hood from tractor.

A—Hood Side Panel
B—Hood Mounting Nuts



5310 Shown

LV1762 -UN-28APR97



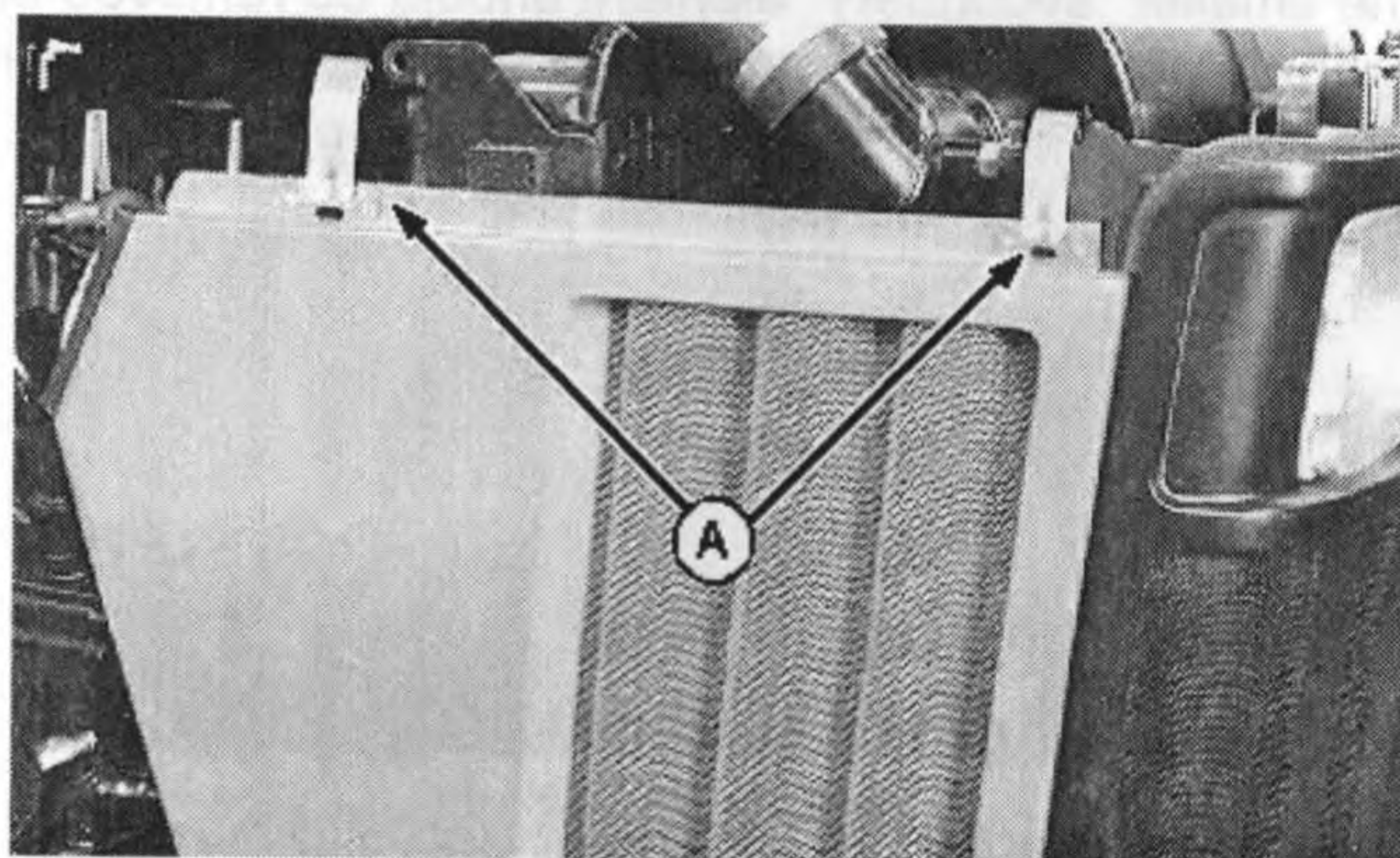
LV1763 -UN-28APR97

LV,5010S,C -19-06JUN97-1/1

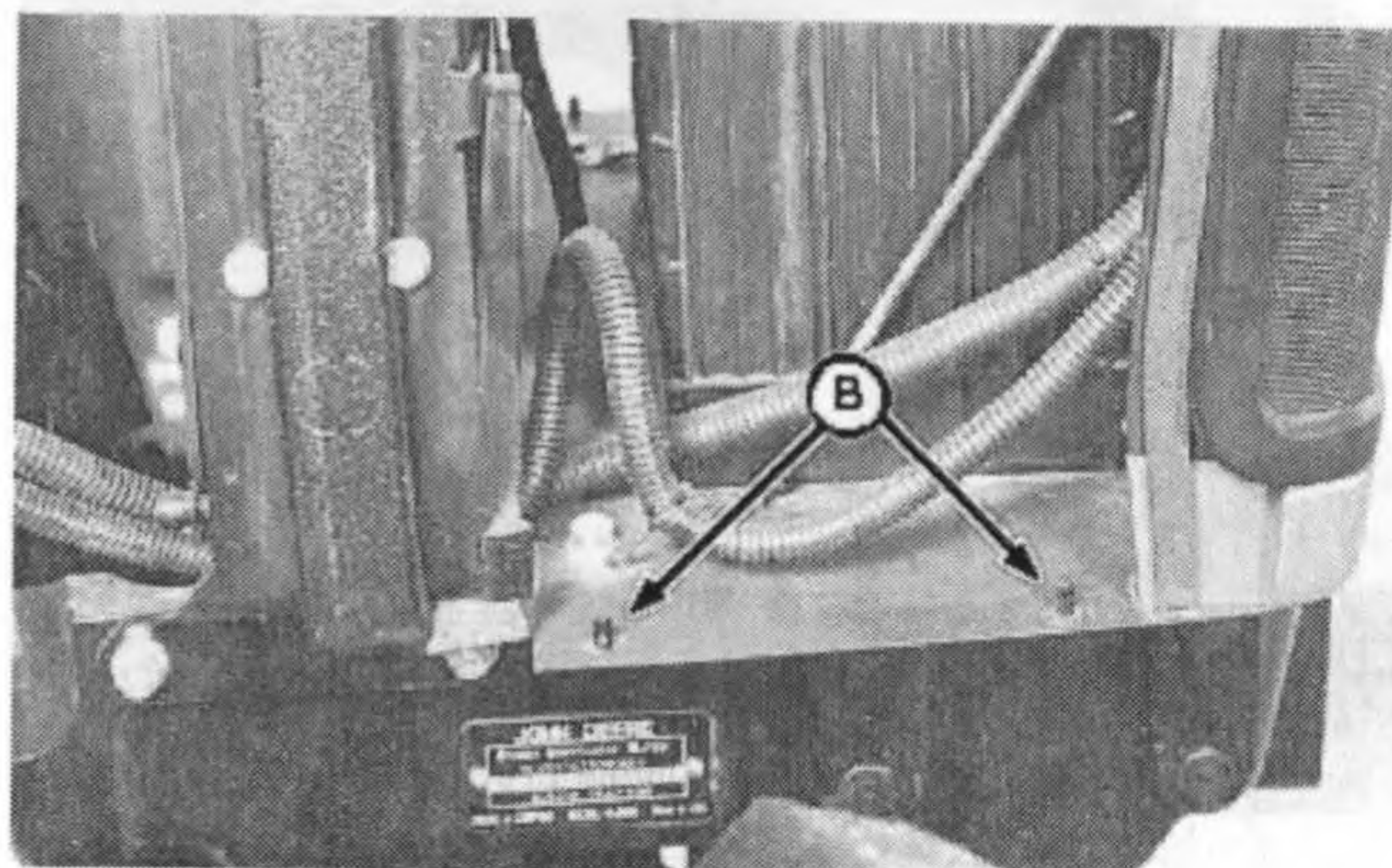
Removing Side Screens

1. Raise the hood and secure the support rod.
2. Turn side screen latch levers (A).
3. Tilt screen outward and lift from lower mounting pins (B).

A—Side Screen Latch Levers
B—Lower Mounting Pins



LV1764 -UN-28AUG97



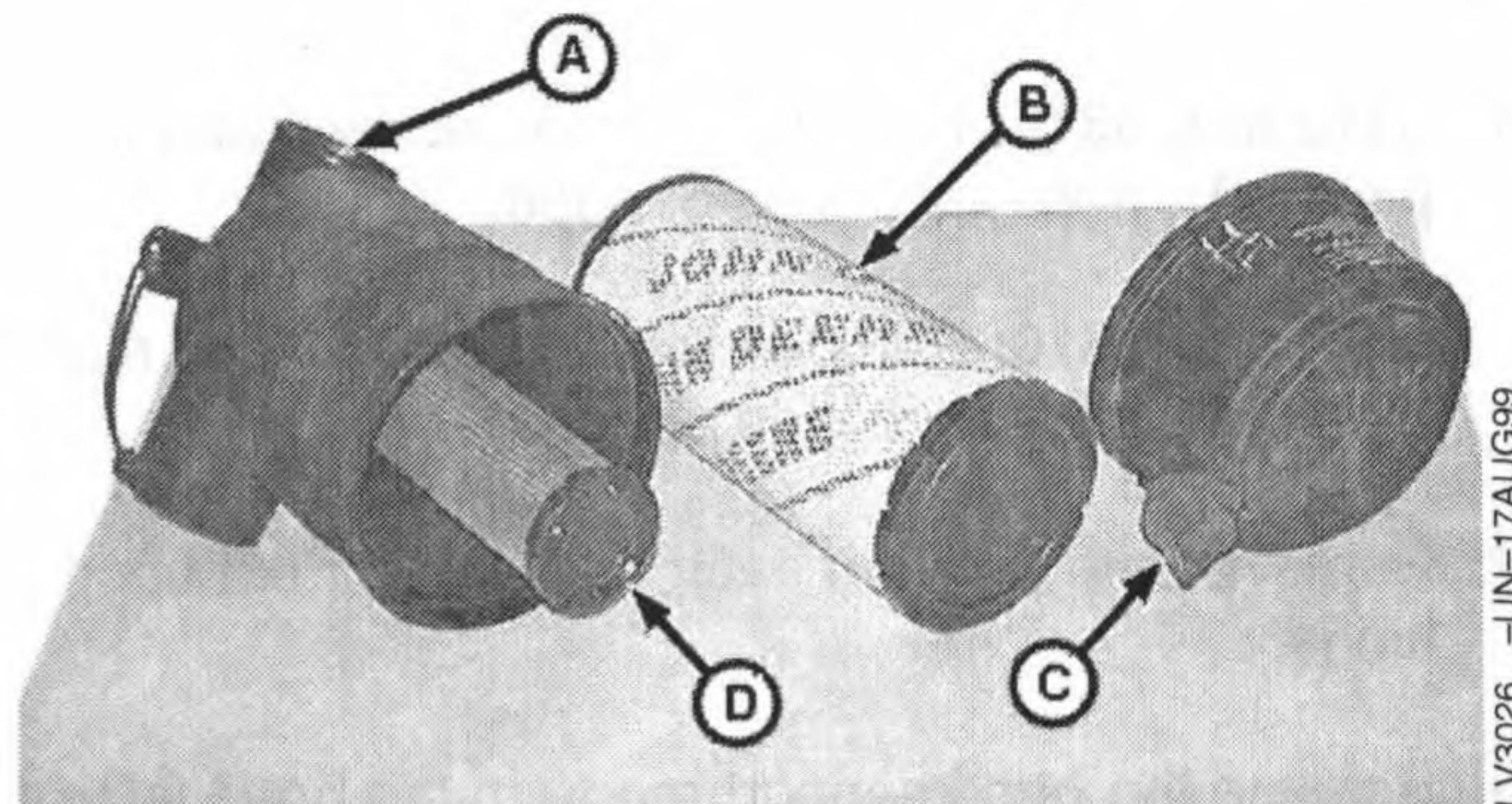
LV1765 -UN-28APR97

LV,5010S,E -19-29AUG97-1/1

Air Intake System Components

Air enters the intake system through the open end of the air cleaner canister (A). A major portion of the dust is separated out by air turbulence action of the primary air cleaner element (B) and passed out into the radiator inlet air flow through the dust unloader valve (C). If the primary element becomes plugged, dust is filtered out by the secondary element (D).

- A—Air Cleaner Canister
- B—Primary Air Cleaner Element
- C—Dust Unloader Valve
- D—Secondary Element



LV3026 -JUN-17AUG99

LV,5010S,F -19-10AUG99-1/1

Service Air Cleaner at Regular Intervals

Service air cleaner if air restriction indicator illuminates or at least every 250 hours. Replace air cleaner elements at least once a year.

The smaller "secondary" element should be removed only when being replaced, normally once a year. (See Service Air Cleaner in Service—250 Hours section.)

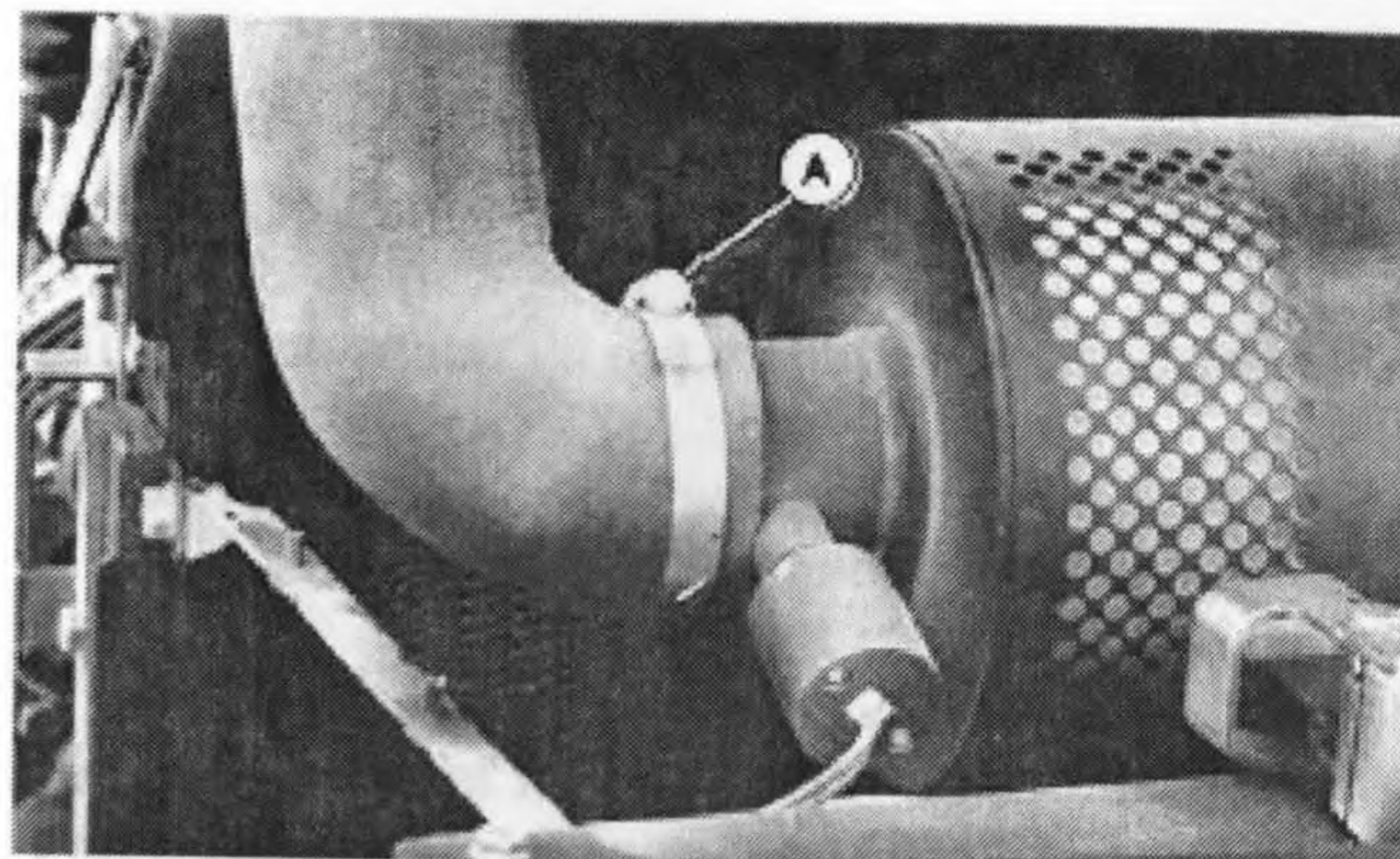
LV,5010S,G -19-03JUN97-1/1

Checking Air Intake System

Check all air intake system clamps (A) for tightness.

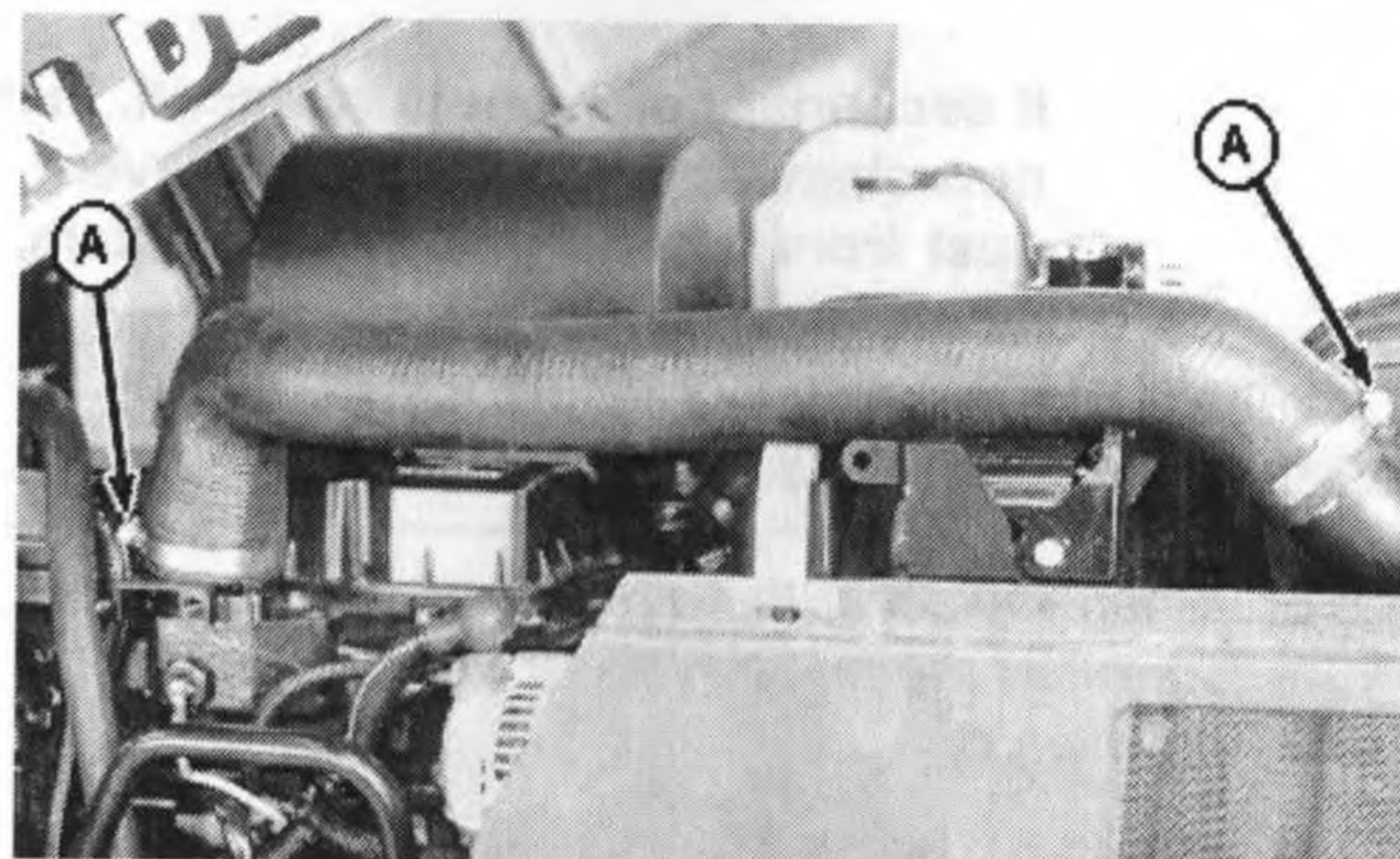
NOTE: 5510 Intake: Side cowls and top cross support of control support removed for photo purposes.

A—Air Intake System Clamps



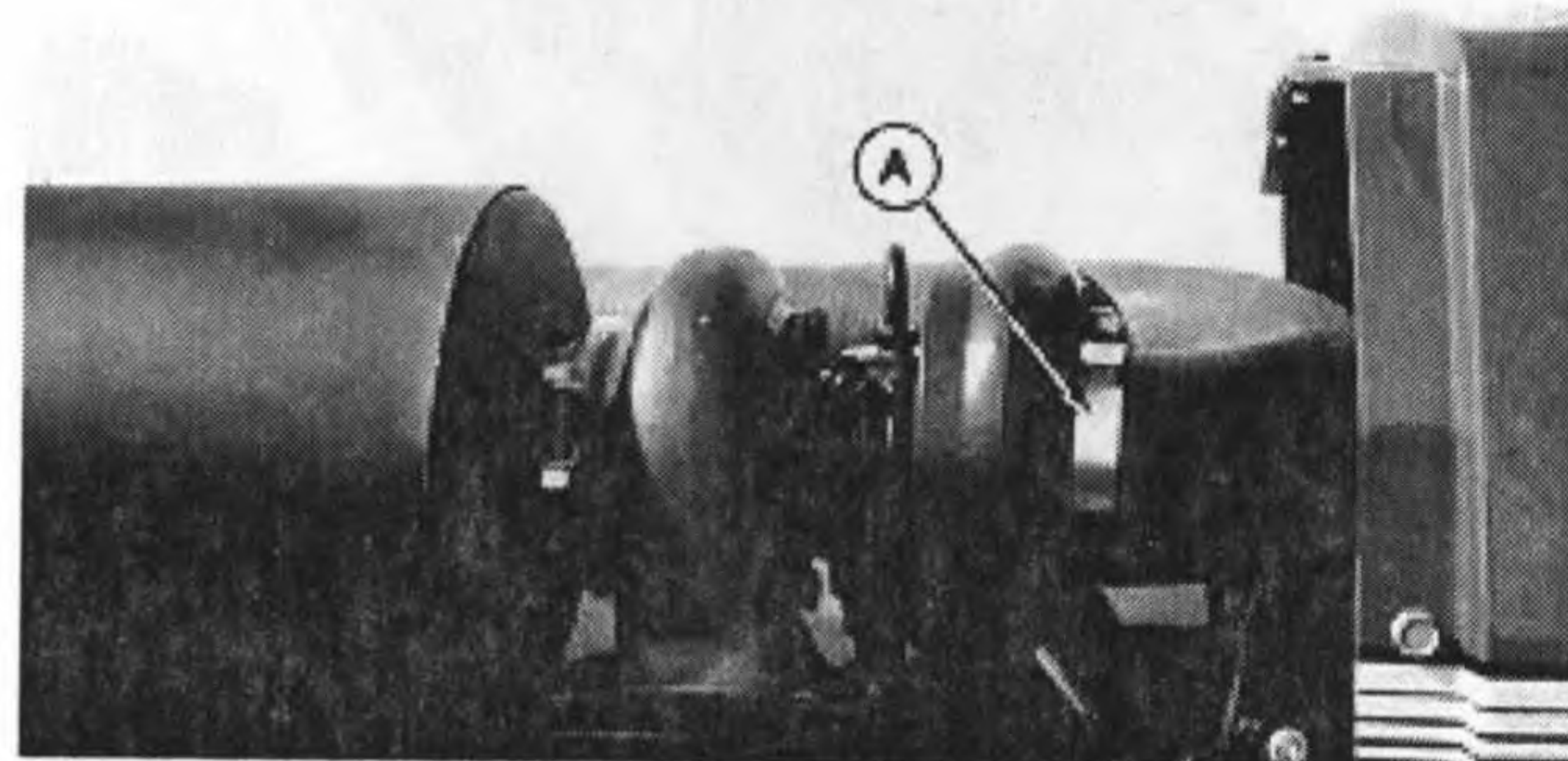
Air Cleaner

M47115 -UN-29JAN92



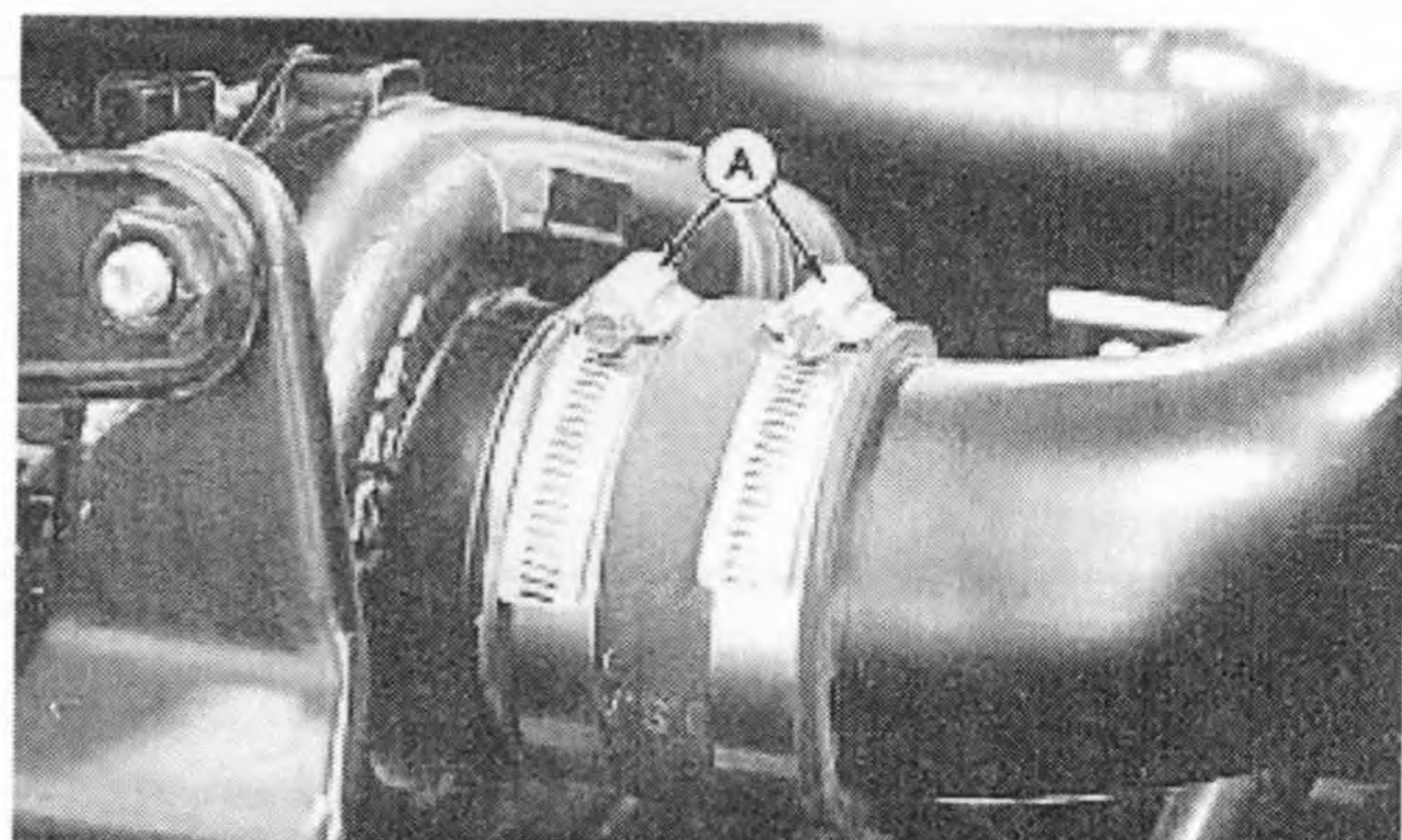
5210 and 5410 Engine Intake

LV1943 -UN-26AUG97



5310 Turbo Intake

LV613 -UN-22APR94



5510 Turbo Intake

LV850 -UN-21JUL95

Removing Air Cleaner Elements

1. Disconnect rubber strap (A) at the front of the canister.
2. Remove primary element (C) by releasing clips (B).
3. Clean out any dirt in canister taking care not to damage the secondary filter element.

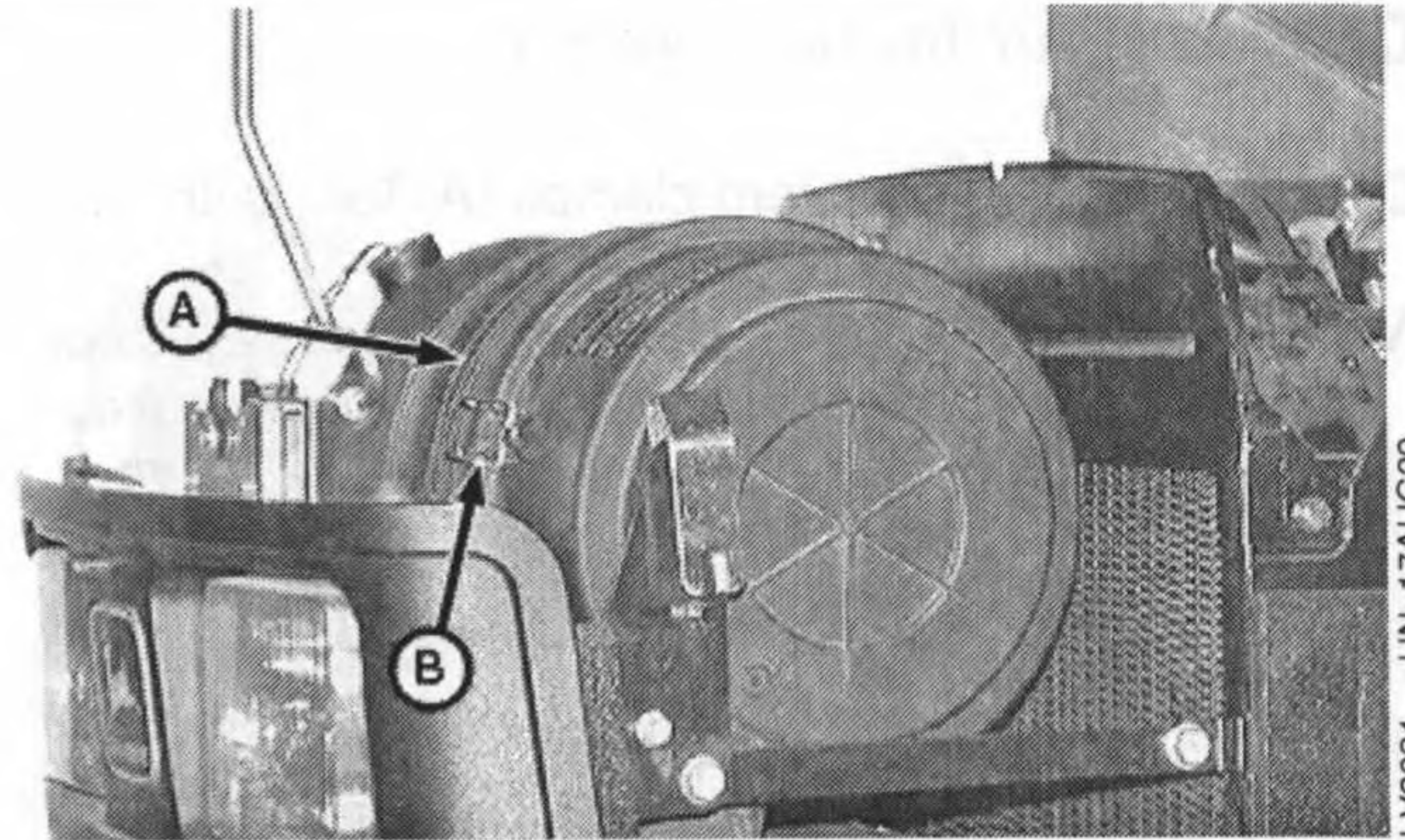
IMPORTANT: Remove secondary element (inner element) **ONLY** if it is to be replaced. **DO NOT** attempt to clean secondary element.

If secondary element is replaced, install new element immediately to prevent dust from entering air intake system.

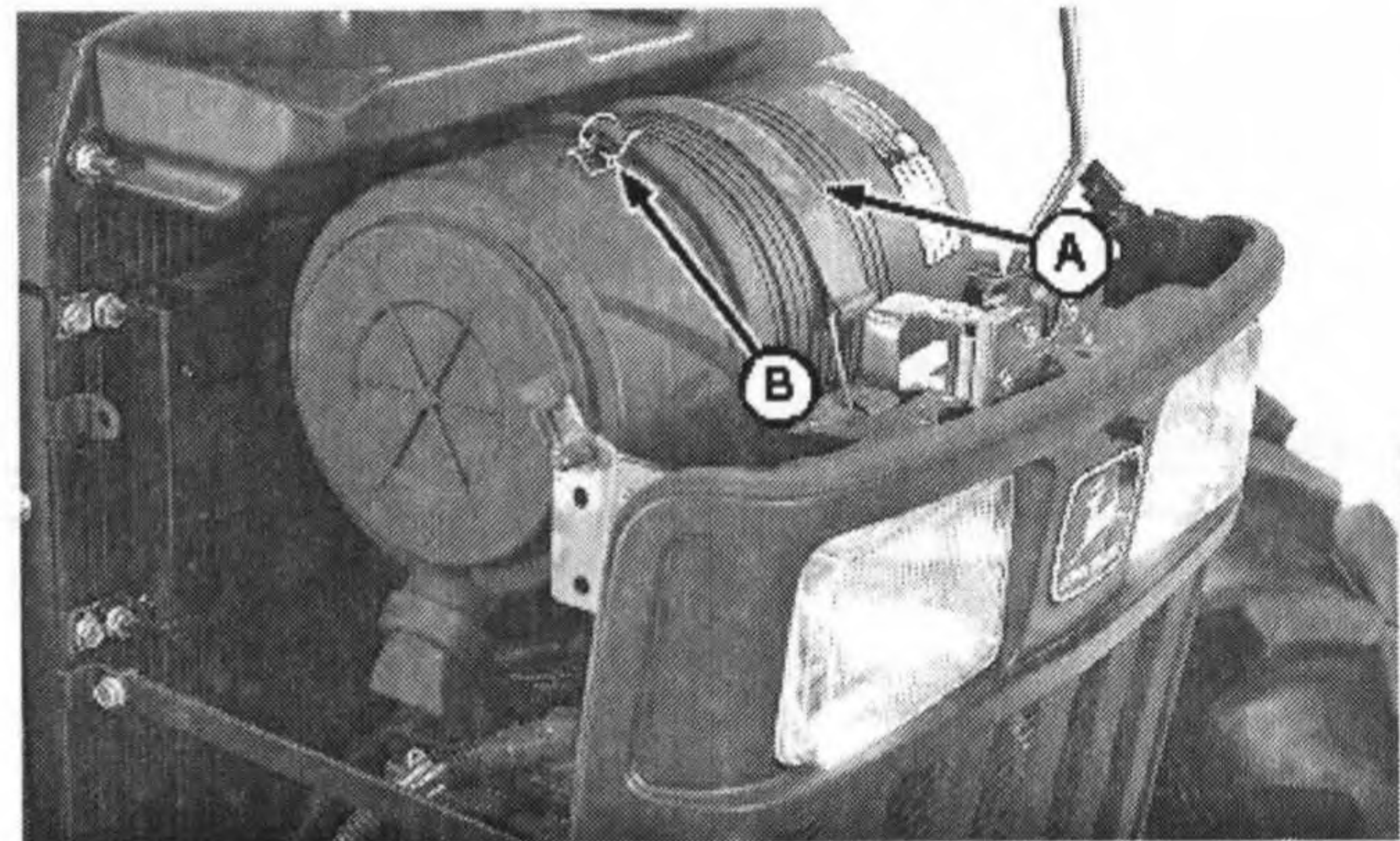
4. Removal of the secondary element is similar to removal of the primary element.

NOTE: When replacing the air cleaner canister, make sure that the dust unloader valve is facing downward.

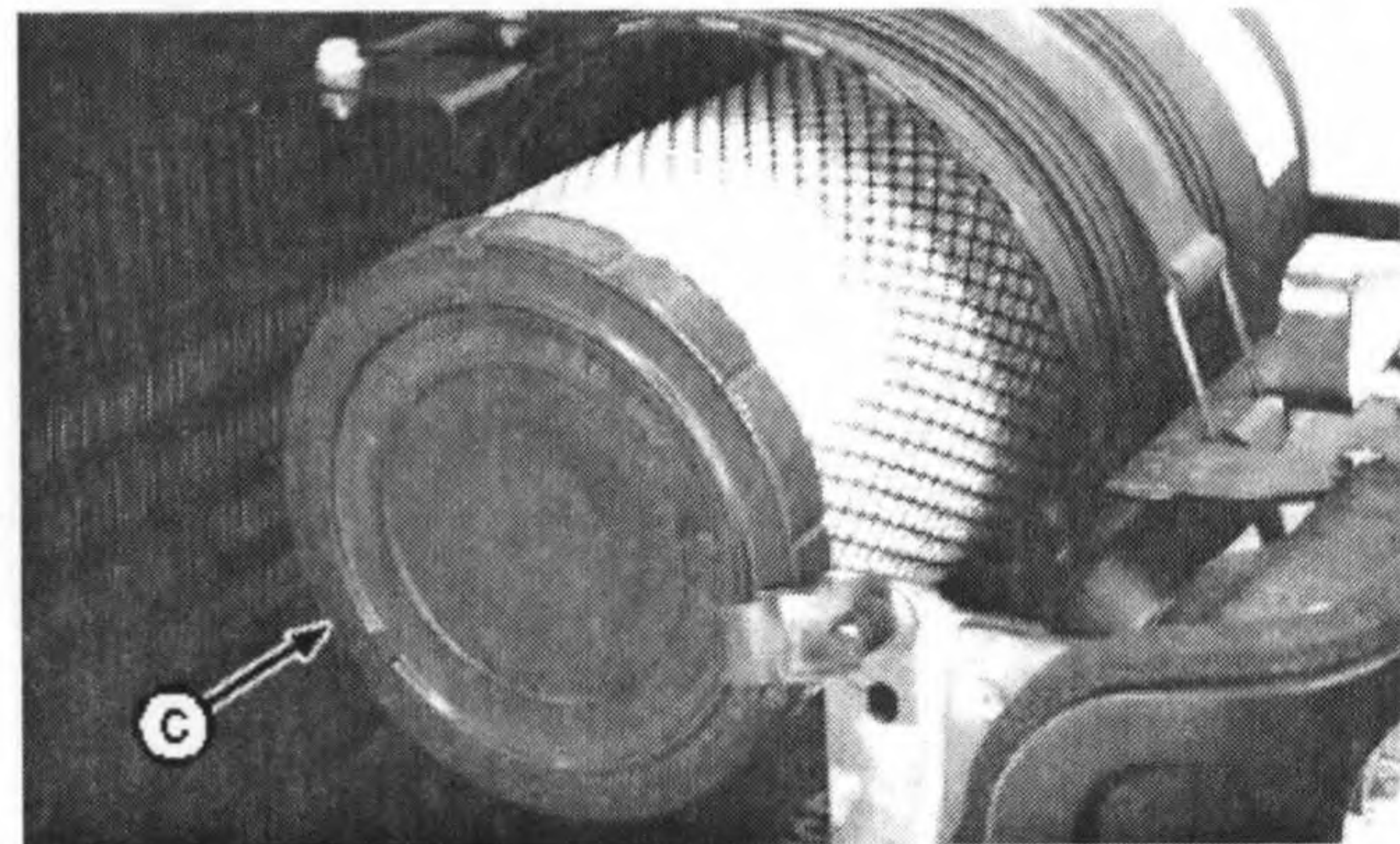
A—Rubber Strap
B—Clips
C—Primary Element



5210 and 5310 Shown



5410 and 5510 Shown

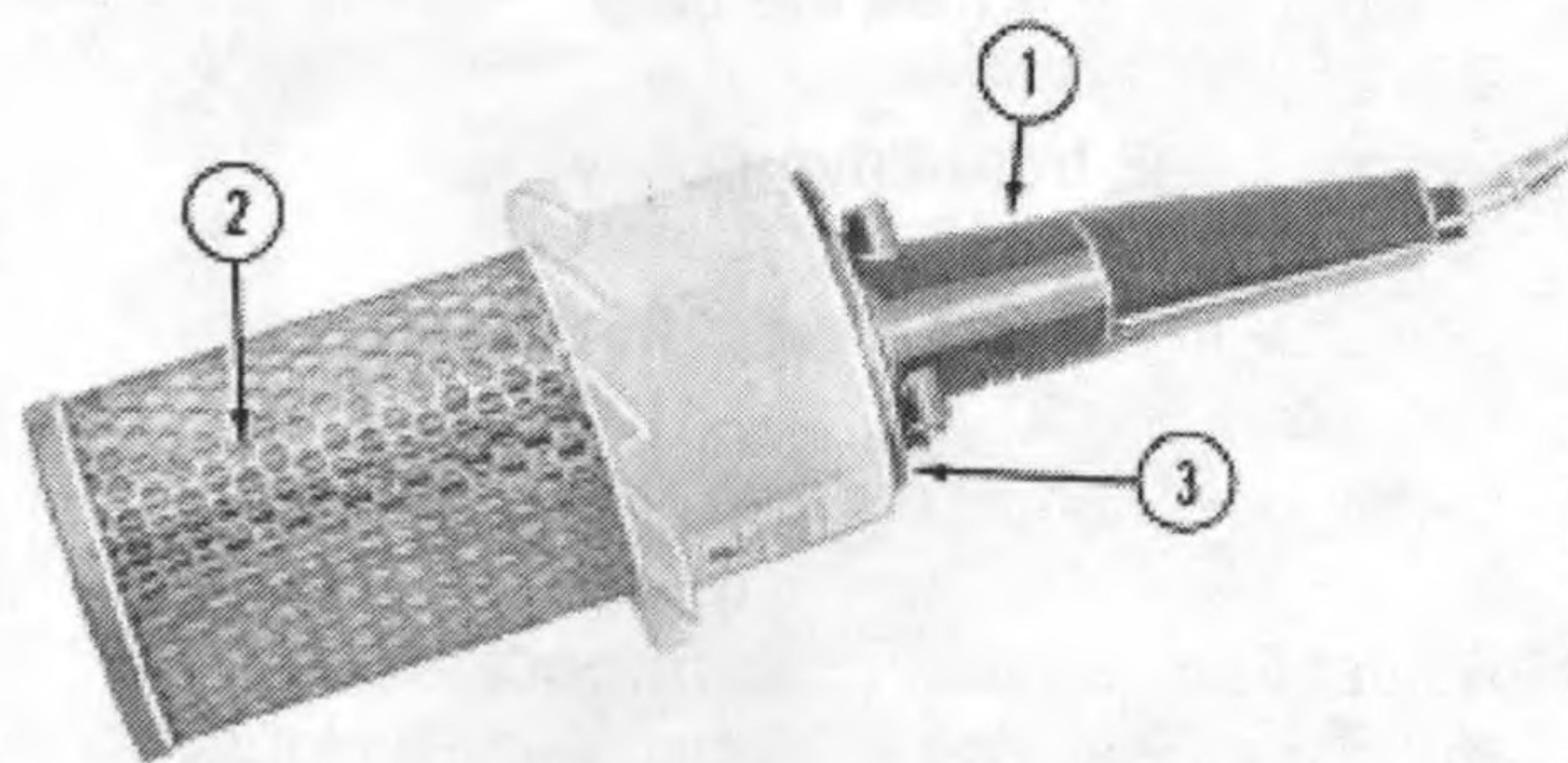


LV,5010S,J -19-02JUN99-1/1

Inspecting Element

1. Hold a bright light (1) inside element (2) and check carefully for holes. Discard any element which shows the slightest hole.
2. Be sure outer screen is not dented. Vibration would quickly wear a hole in filter.
3. Be sure rubber sealing surfaces (3) are in good condition on both ends. If damaged, replace element.

- 1—Light Source
2—Element
3—Rubber Sealing Surface

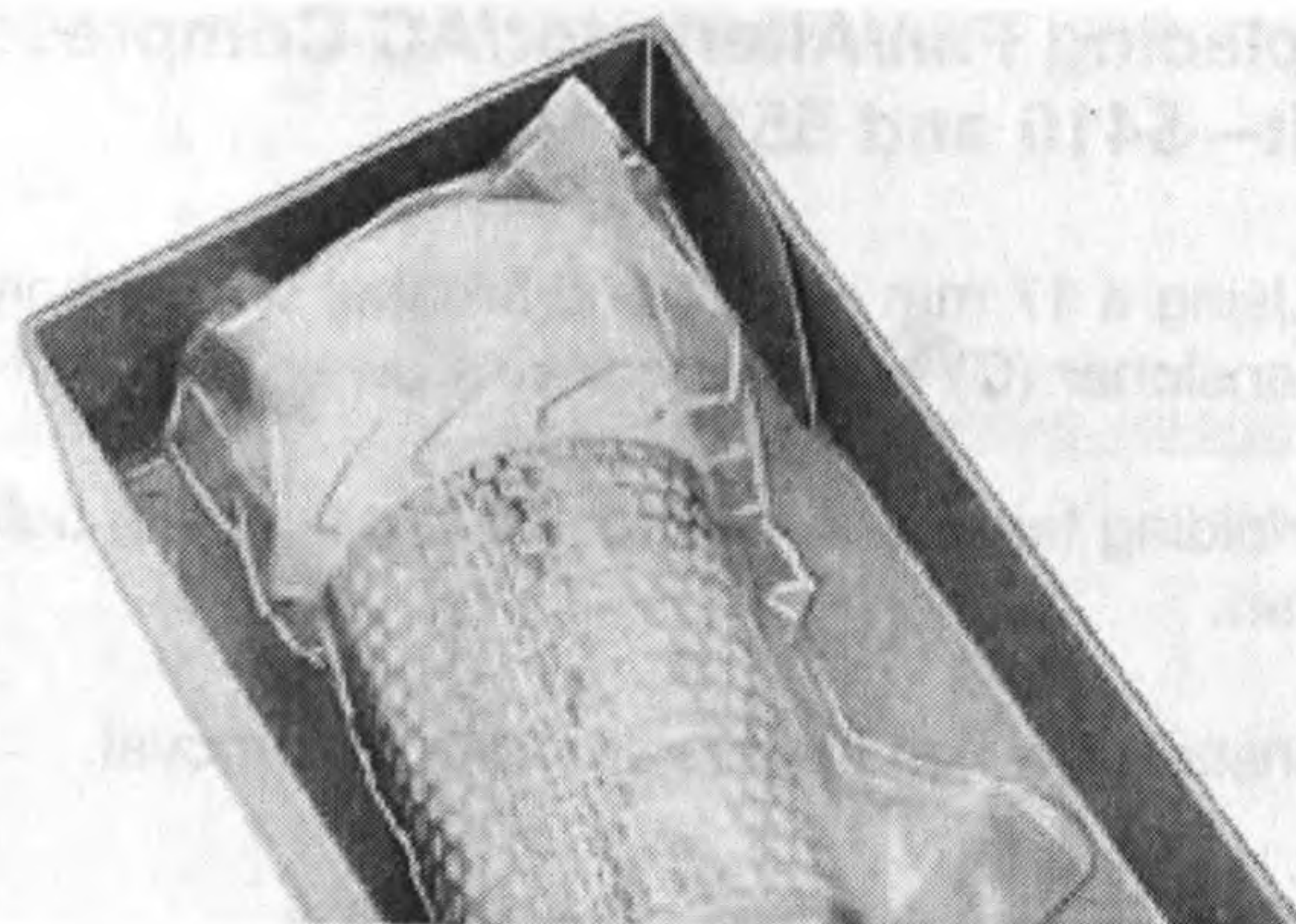


RW470 -UN-13DEC88

MX,SEIP,LA1 -19-01JUN99-1/1

Storing Element

If element is not installed on tractor, seal element in a plastic bag and store in its original shipping container to protect against dust and damage.



RW471 -UN-26FEB90

MX,SEIP,MA1 -19-24JUL95-1/1

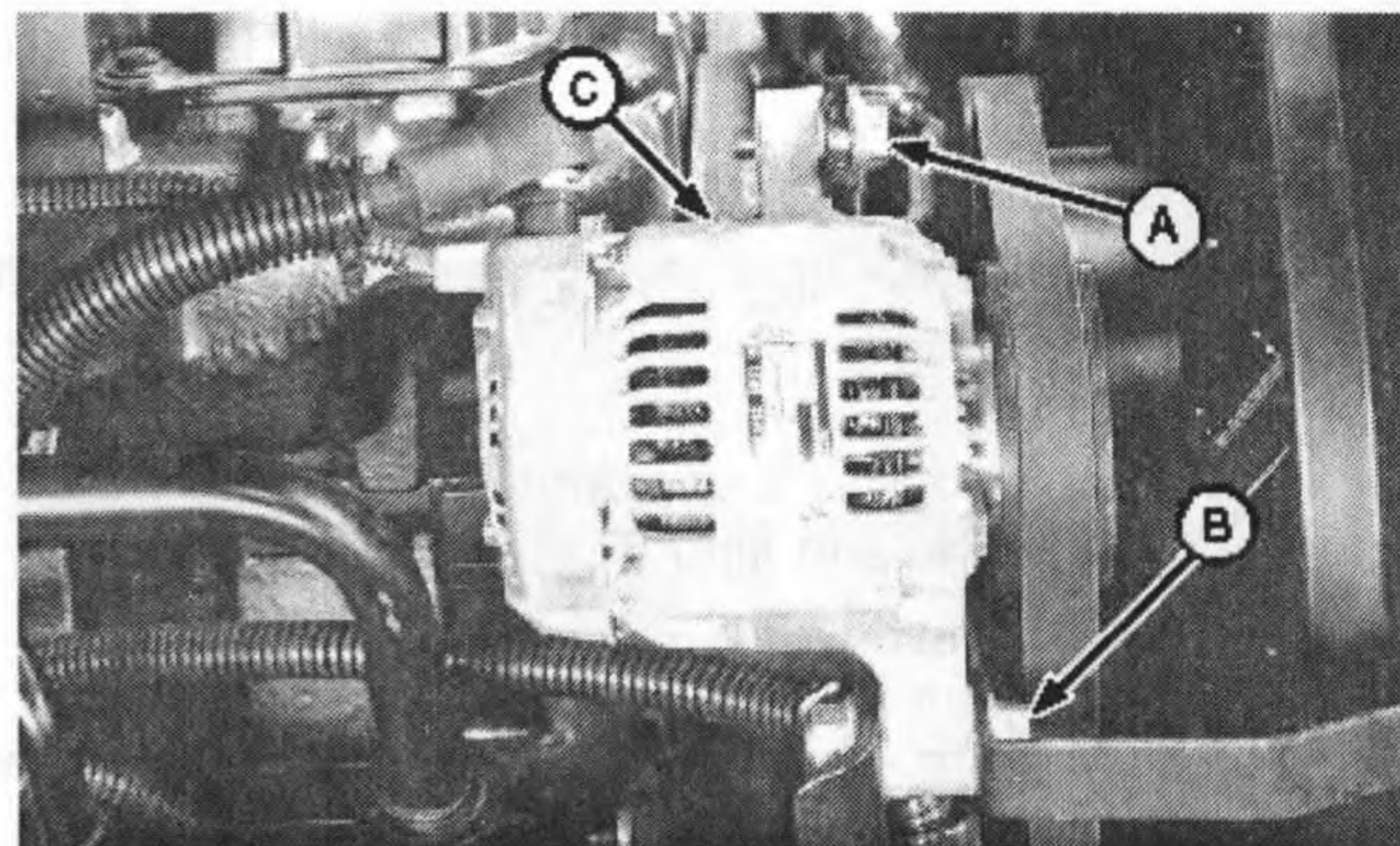
Replacing Alternator/Fan Belt—5210 and 5310

1. Remove A/C compressor belt, if equipped. (See procedure in this section.)

Continued on next page

LV,5010S,K -19-09SEP97-1/2

2. Loosen cap screw (A) and bolt (B) and rotate the alternator (C) to free the belt.
3. Remove belt from drive pulley.
4. Belt can be pulled around fan to remove.
5. Install new belt in reverse order of removal.
6. Adjust belt tension. (See Inspect and Adjust Alternator/Fan Belt in Service—250 Hours section.)



LV1756 -UN-02SEP97

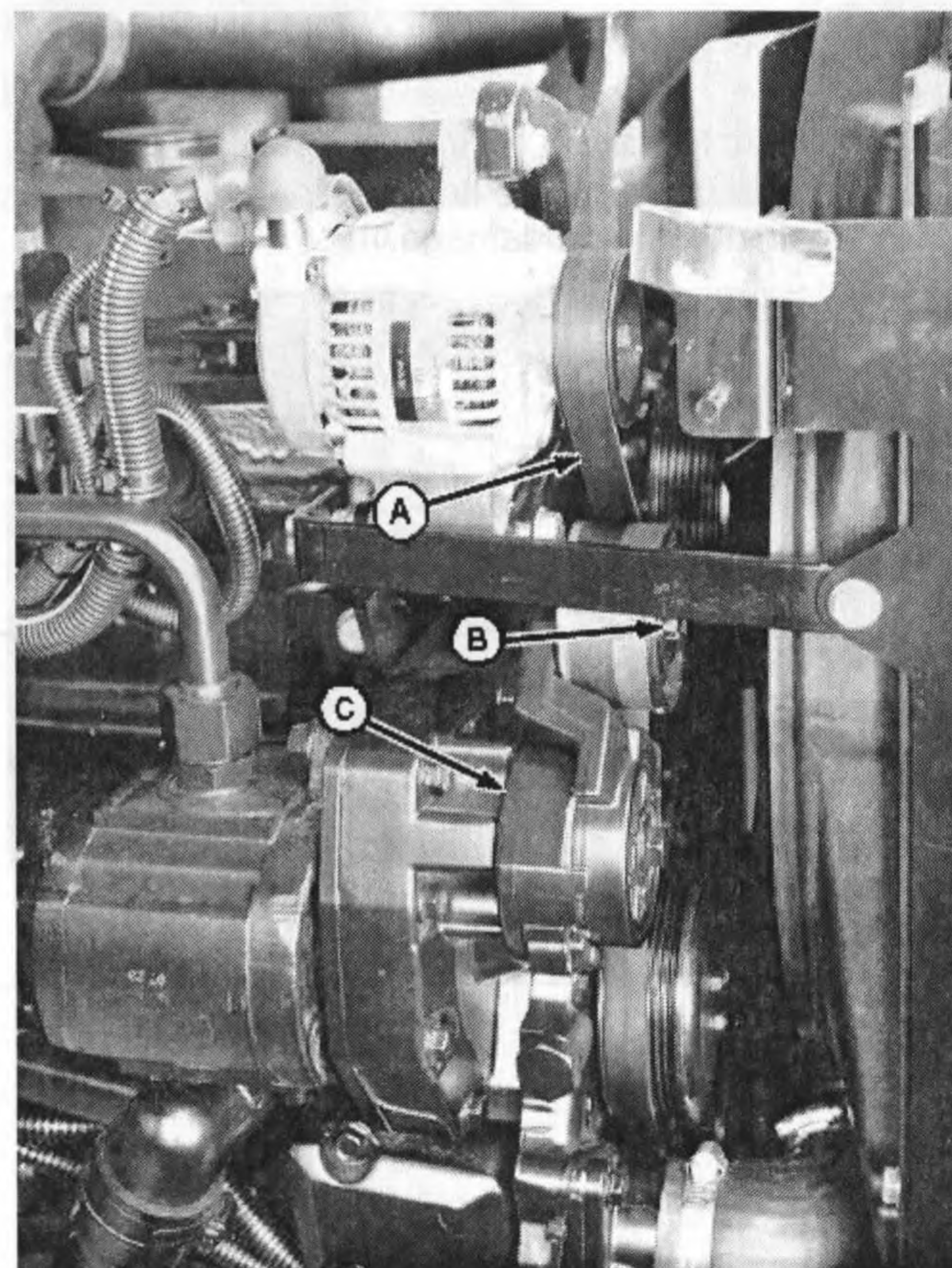
A—Alternator Cap Screw
B—Alternator Bolt
C—Alternator

LV,5010S,K -19-09SEP97-2/2

Replacing Fan/Alternator/AC Compressor Belt—5410 and 5510

1. Using a 17 mm socket and breaker bar on bolt (B), pry tensioner (C) counterclockwise away from belt (A).
2. Holding tensioner in retracted position, slip belt off over fan.
3. Install new belt in reverse order of removal.

A—Fan/Alternator/AC Compressor Belt
B—Bolt
C—Tensioner



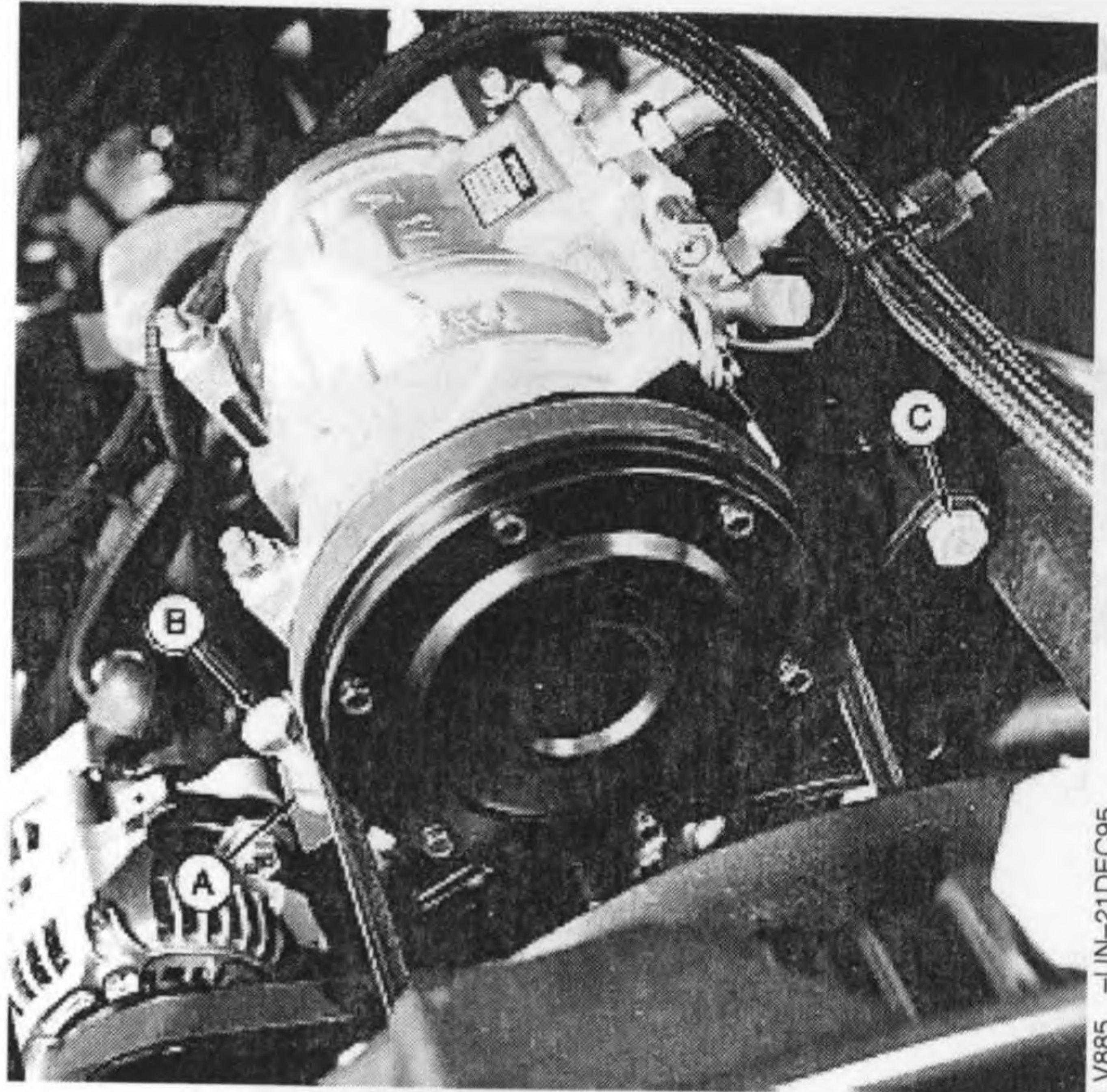
LV1768 -UN-26AUG97

LV,5010S,L -19-29AUG97-1/1

Replacing A/C Compressor Belt (Cab—5210 and 5310)

1. Loosen cap screw (C) and jam nut (A).
2. Turn adjustment bolt (B) counterclockwise to loosen belt.
3. Remove belt from drive pulley.
4. Belt can be pulled around fan to remove.
5. Install new belt in reverse order of removal.
6. Adjust belt tension. (See Inspect and Adjust A/C Compressor Belt (Cab—5210 and 5310) in Service—250 Hours section.)

A—Mounting Jam Nut
B—Adjustment Bolt
C—Mounting Cap Screw

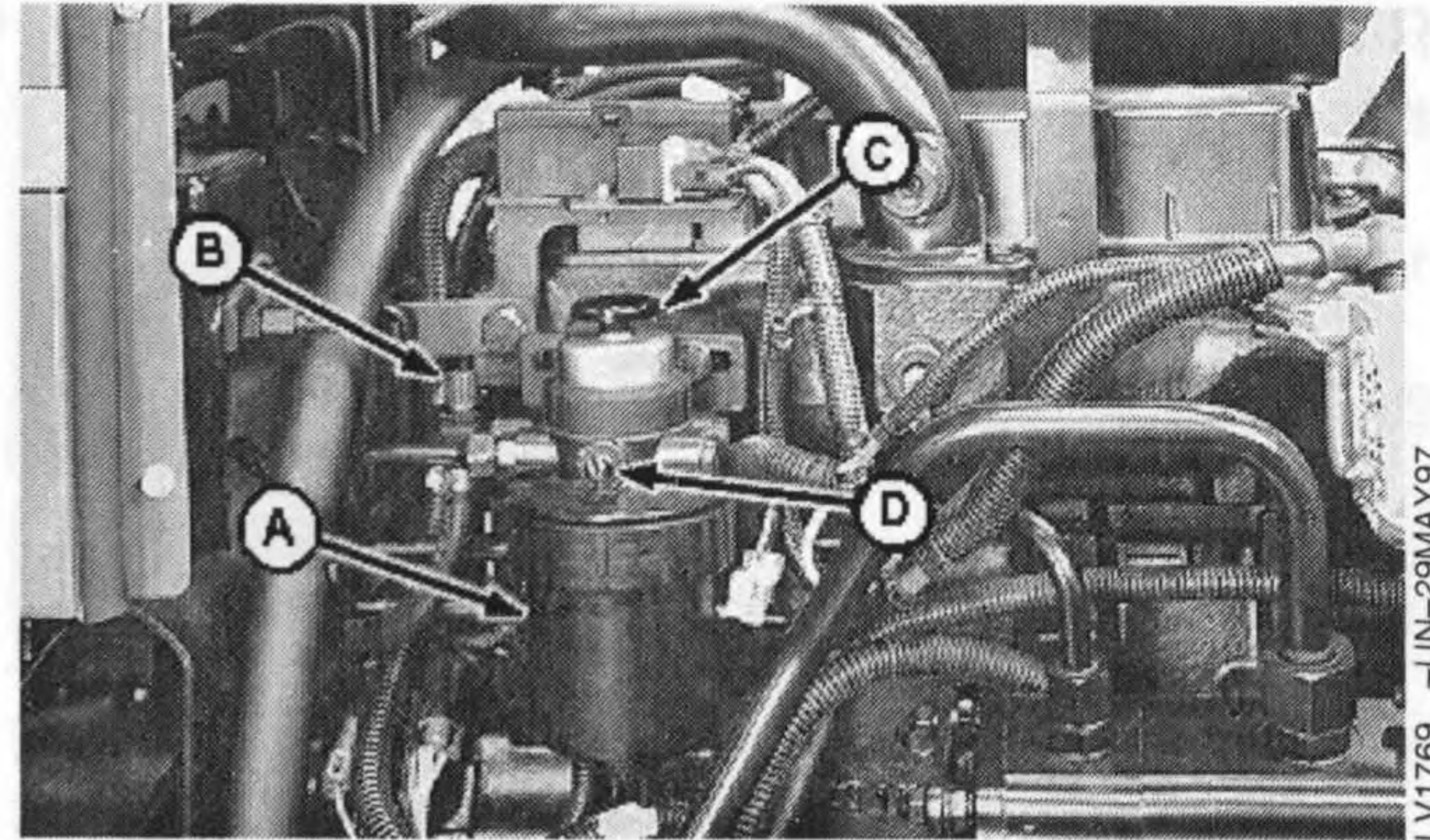


LV885 -UN-21DEC95

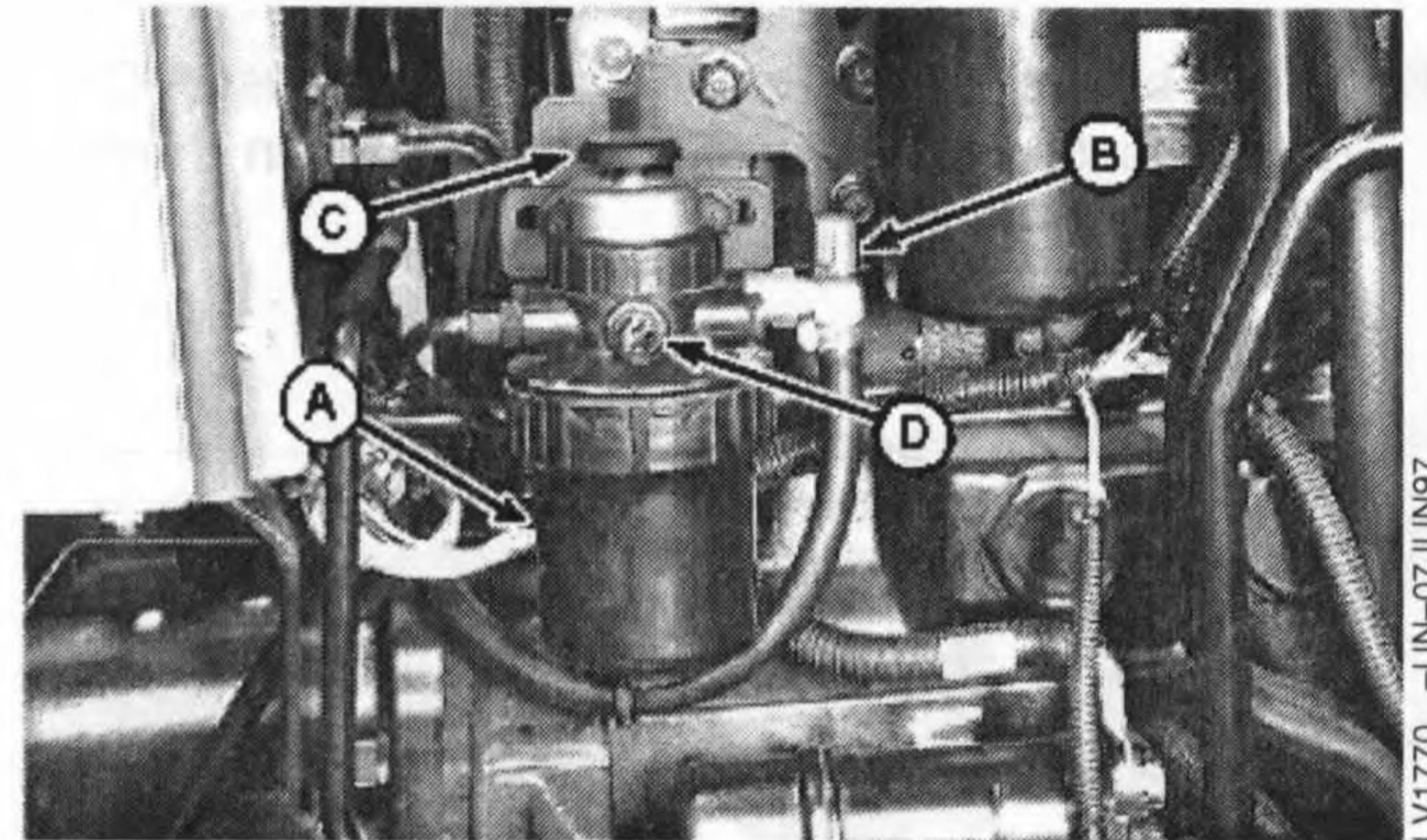
LV,5010S,AK -19-04SEP97-1/1

Fuel System Components

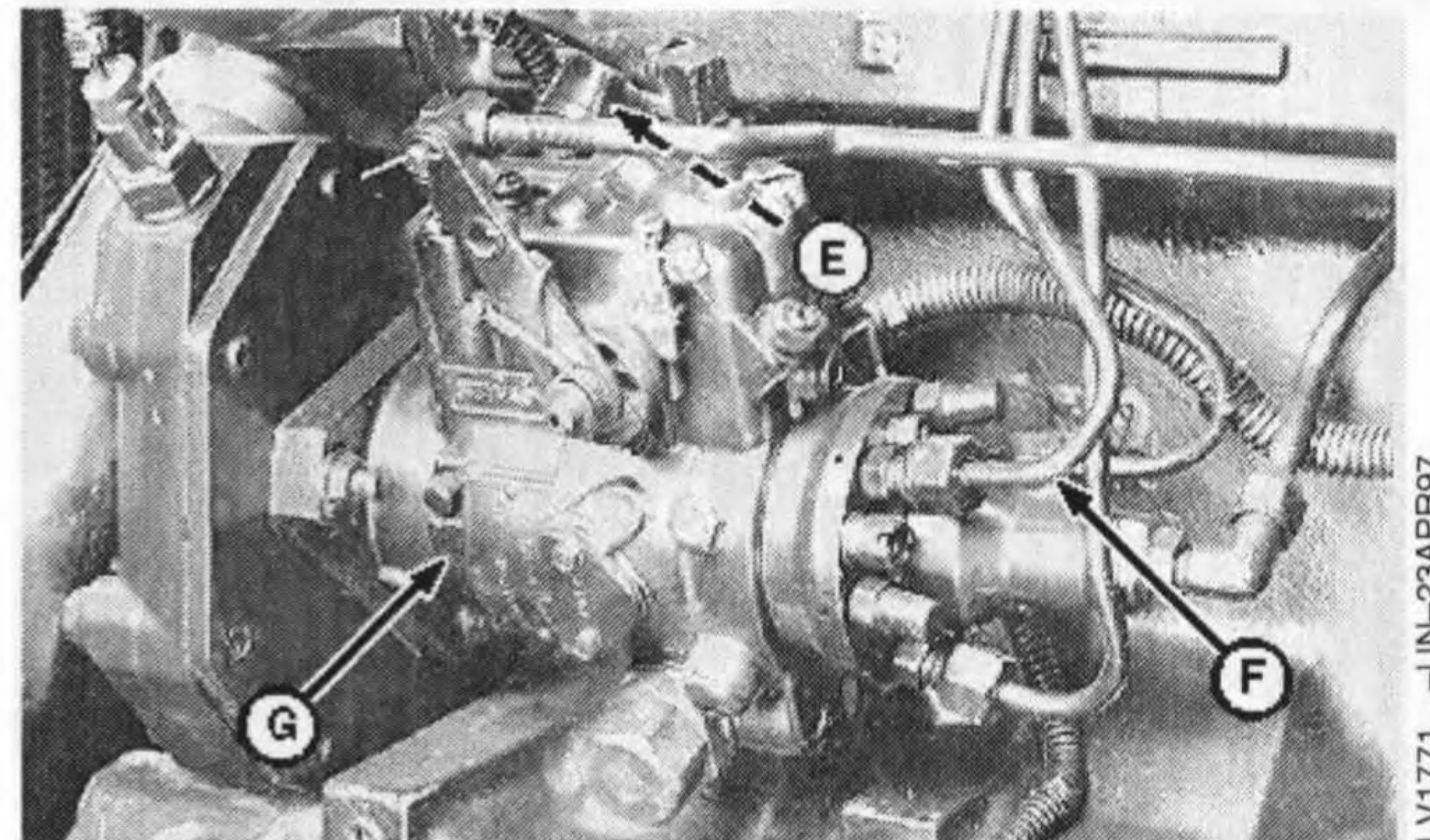
- A—FuelGard™ Fuel Filter
- B—Fuel Shut-off Valve
- C—Priming Pump
- D—Bleed Screw
- E—Electric Fuel Shut-off
- F—Fuel Injection Lines
- G—Injection Pump



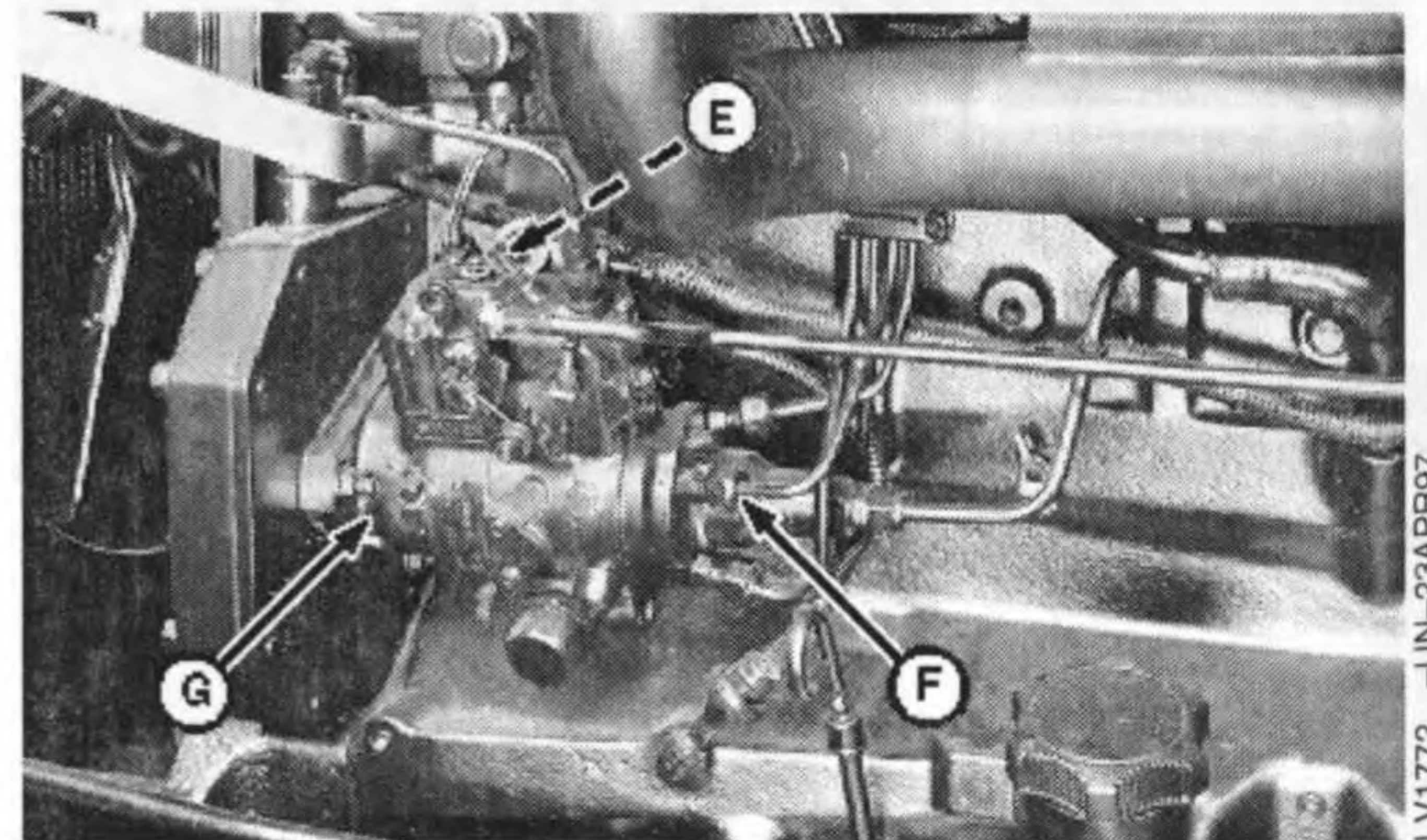
5210 and 5310 Shown



5410 and 5510 Shown



5210 and 5310 Shown



5410 and 5510 Shown

FuelGard is a trademark of Deere & Company.

LV,5010S,M -19-03JUN97-1/1

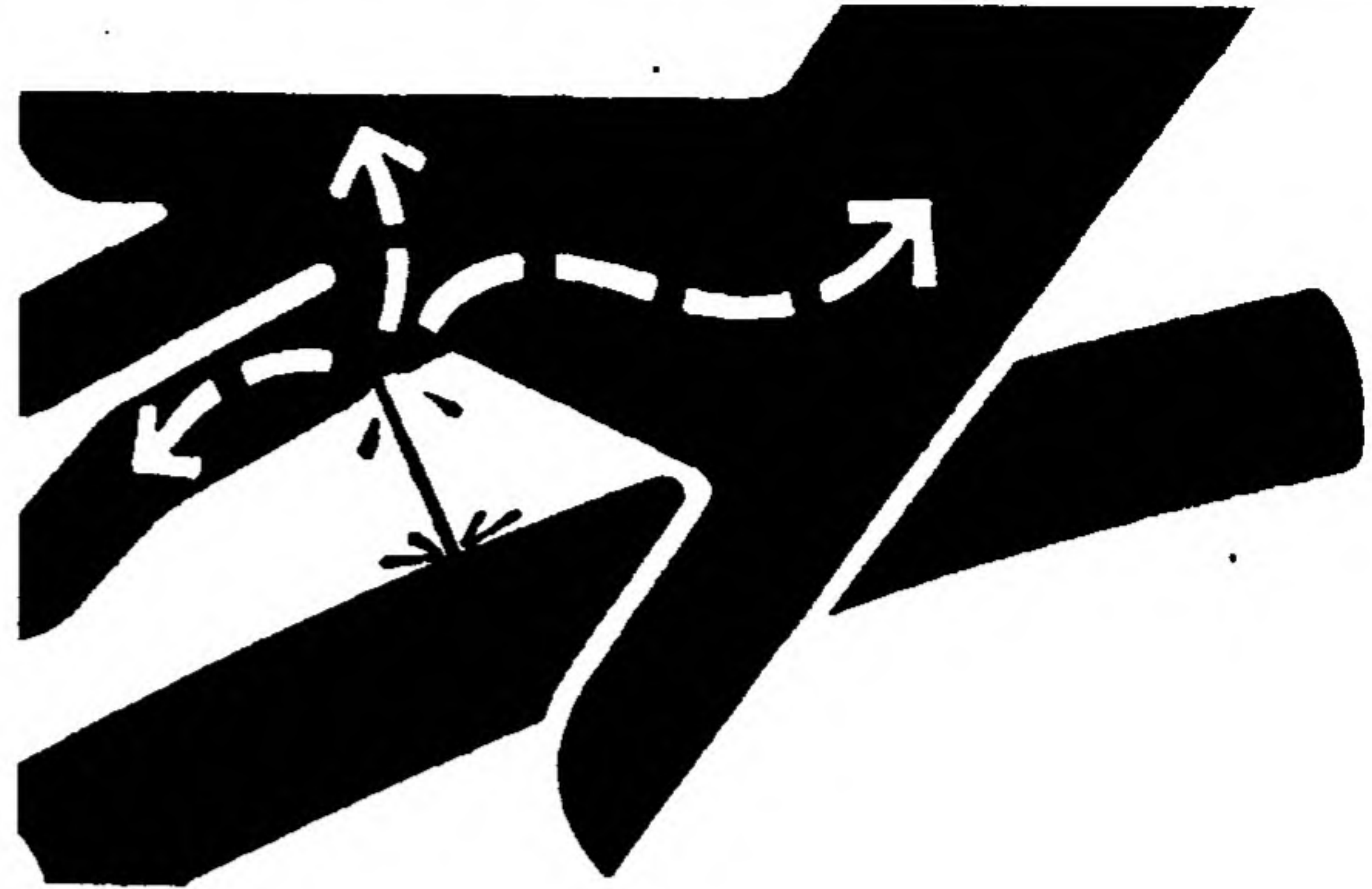
Bleeding Fuel System



CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

1. Fuel tank must be full of fuel with the fuel shut-off valve open.



X9811 -JUN-23AUG88

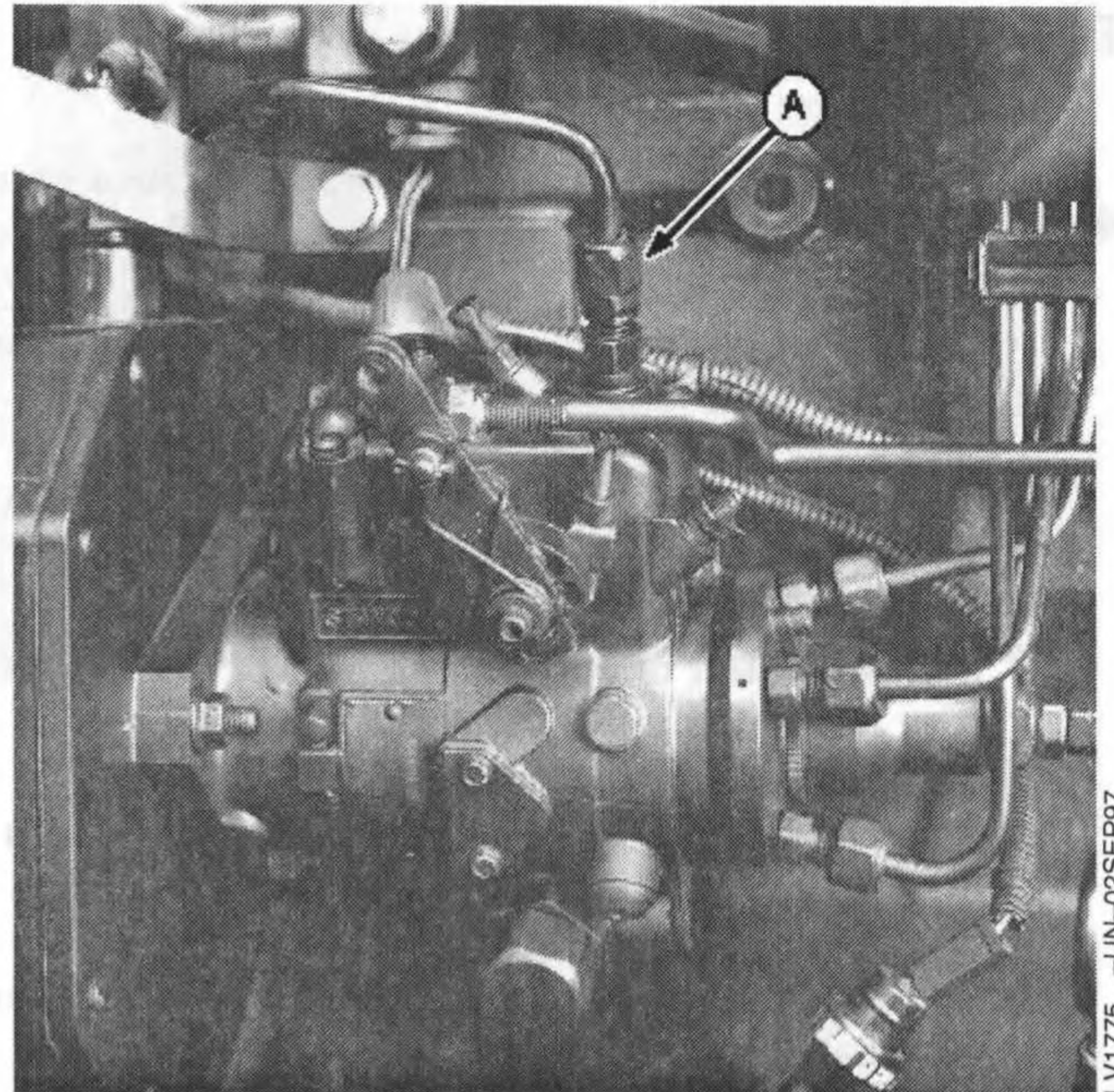
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LV,5010S,N -19-04SEP97-1/2

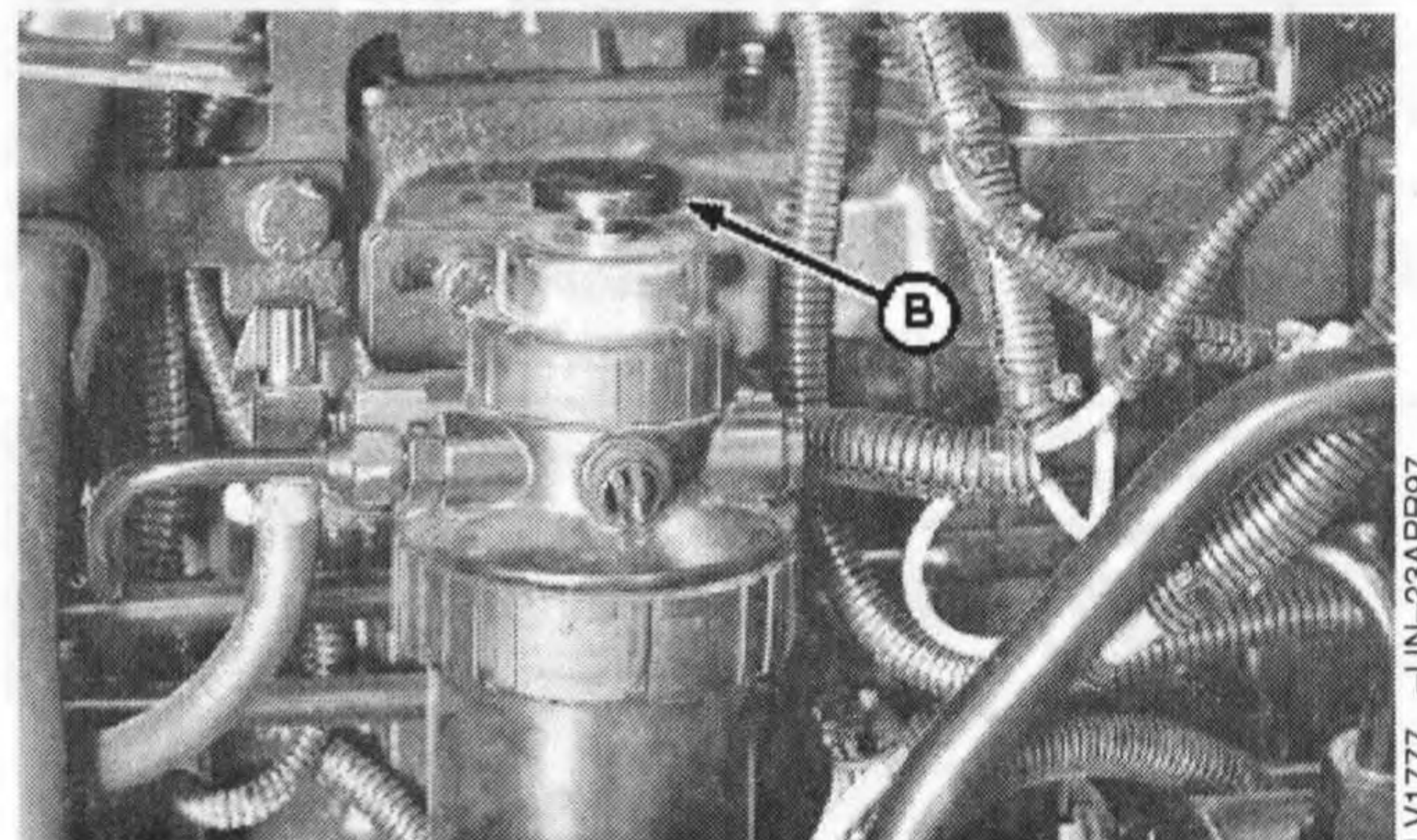
IMPORTANT: To avoid injection pump damage, DO NOT attempt to start the engine while bleeding the fuel system.

2. Loosen fuel return line (A). Push priming pump (B) until fuel runs out smoothly without spitting, then tighten fuel line.

A—Fuel Return Line
B—Priming Pump



5210 and 5310 Shown



5510 Filter Shown

LV,5010S,N -19-04SEP97-2/2

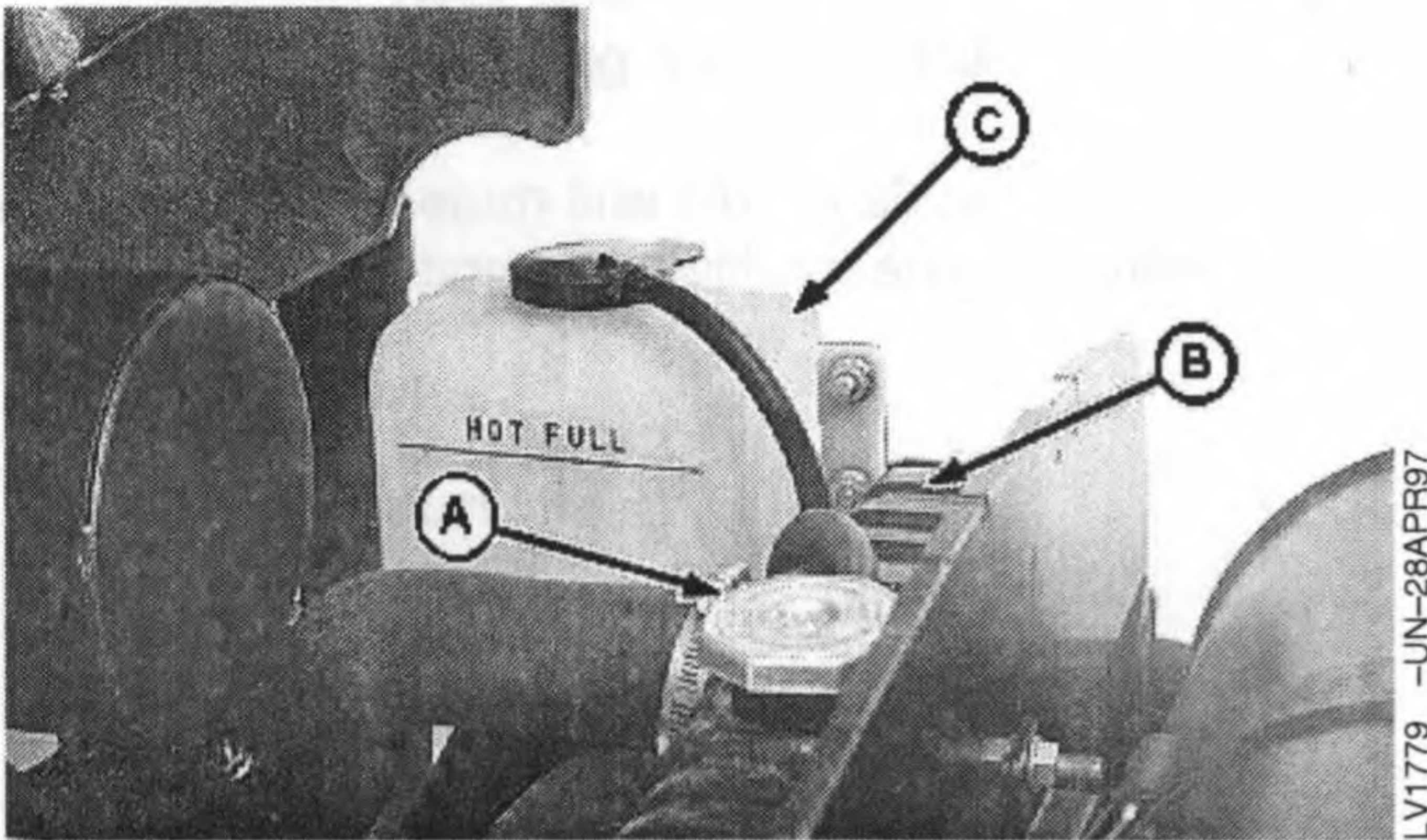
Do Not Modify Fuel System

IMPORTANT: Modification or alteration of the injection pump, the injection pump timing, or the fuel injectors in ways not recommended by the manufacturer will terminate the warranty obligation to the purchaser. (See warranty information inside front cover.)

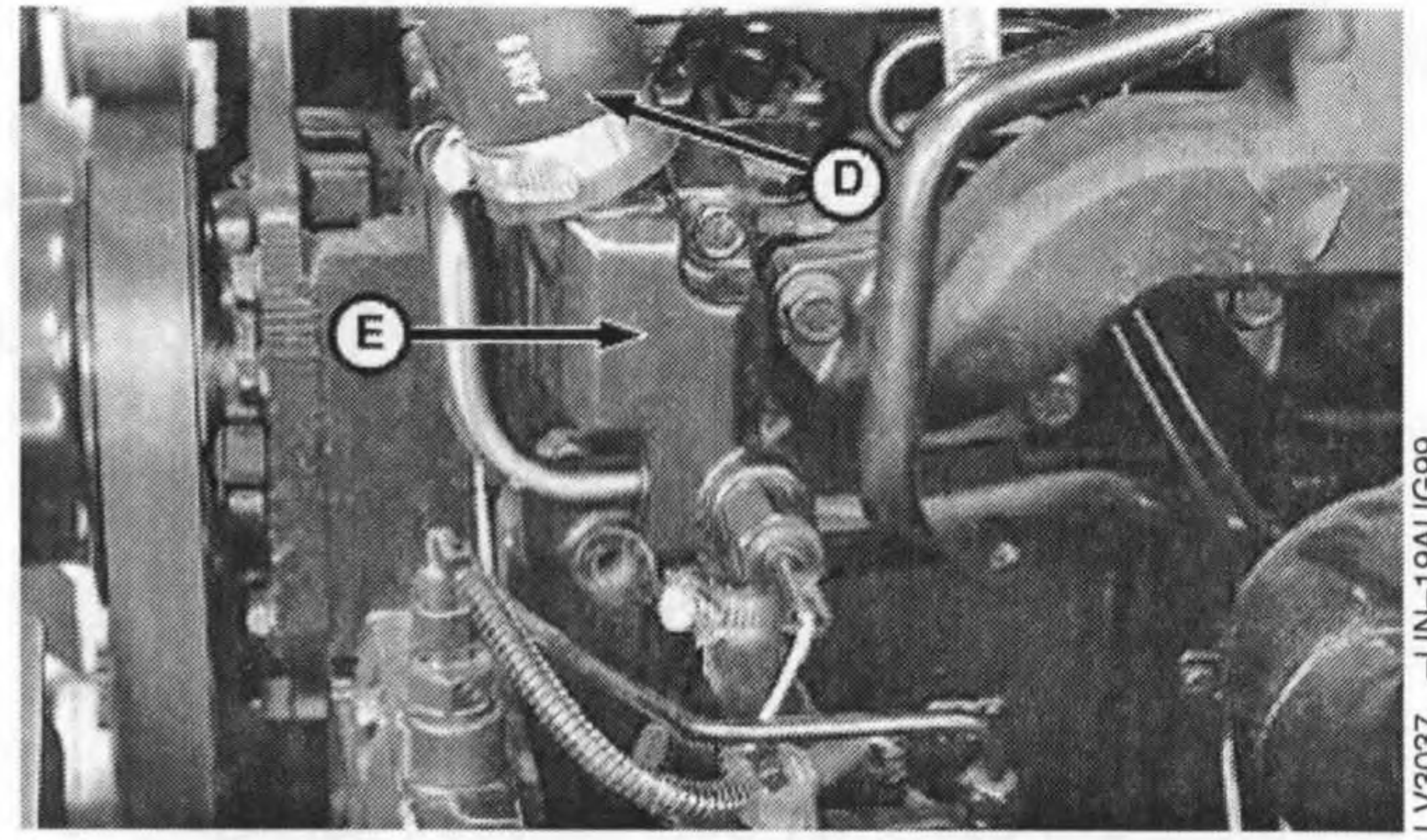
DO NOT attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. (See your John Deere dealer.)

MX,SEIP,QA1 -19-21APR94-1/1

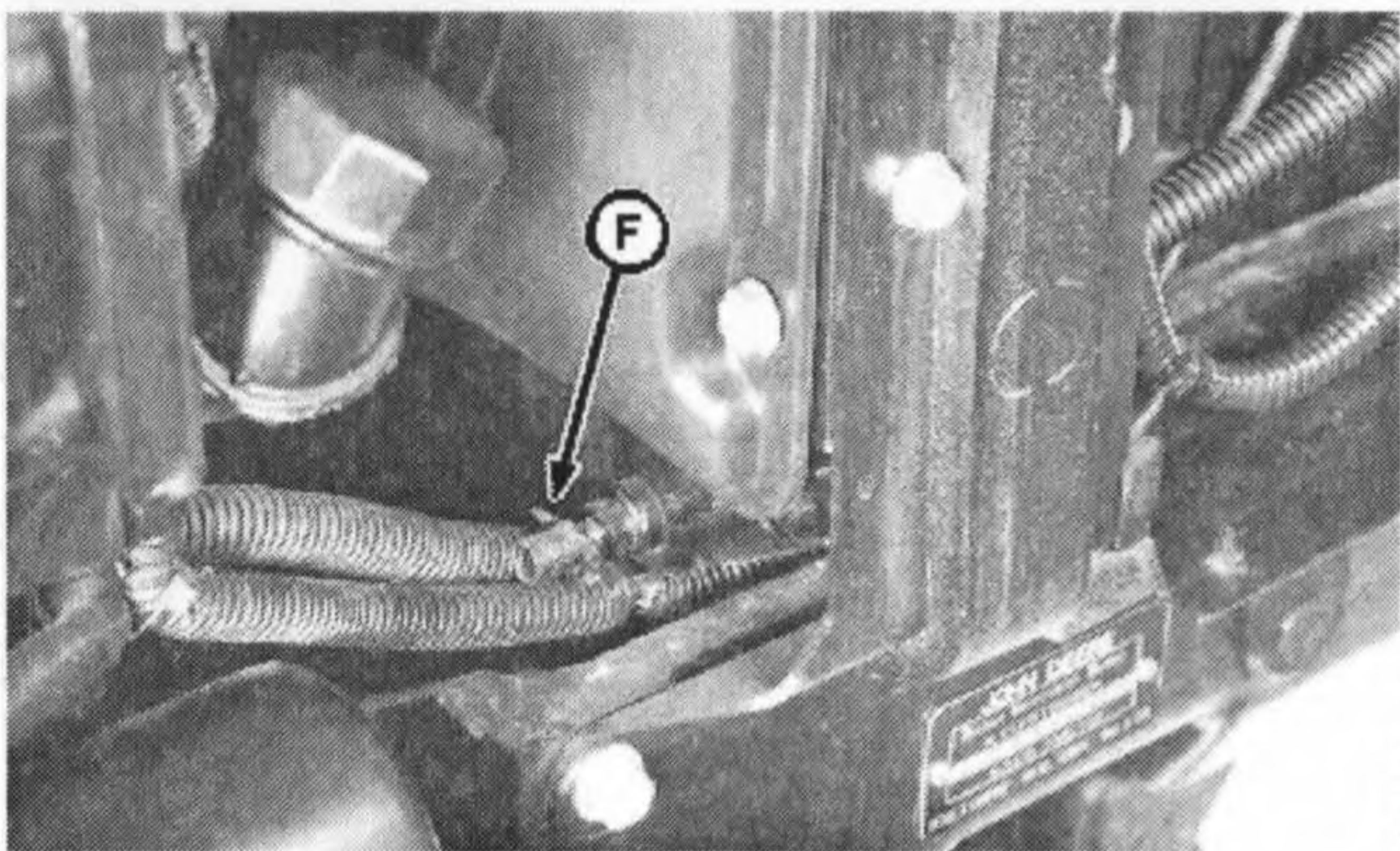
Engine Cooling System Components



LV1779 -UN-28APR97



LV3037 -UN-19AUG99



LV1925 -UN-07JUN97

- A—Radiator Cap
- B—Radiator
- C—Coolant Recovery Tank
- D—Upper Radiator Hose
- E—Thermostat Housing
- F—Radiator Drain

NOTE: 5210 and 5310 tractors shown.

IMPORTANT: Never pour cold water into the cooling system of a hot engine, as it might crack cylinder block or head. **DO NOT** operate engine without coolant for even a few minutes.

The tractors utilize a remote coolant recovery tank. Make-up coolant is added to the coolant recovery tank rather than directly to the radiator.

LV,5010S,O -19-06JUN97-1/1

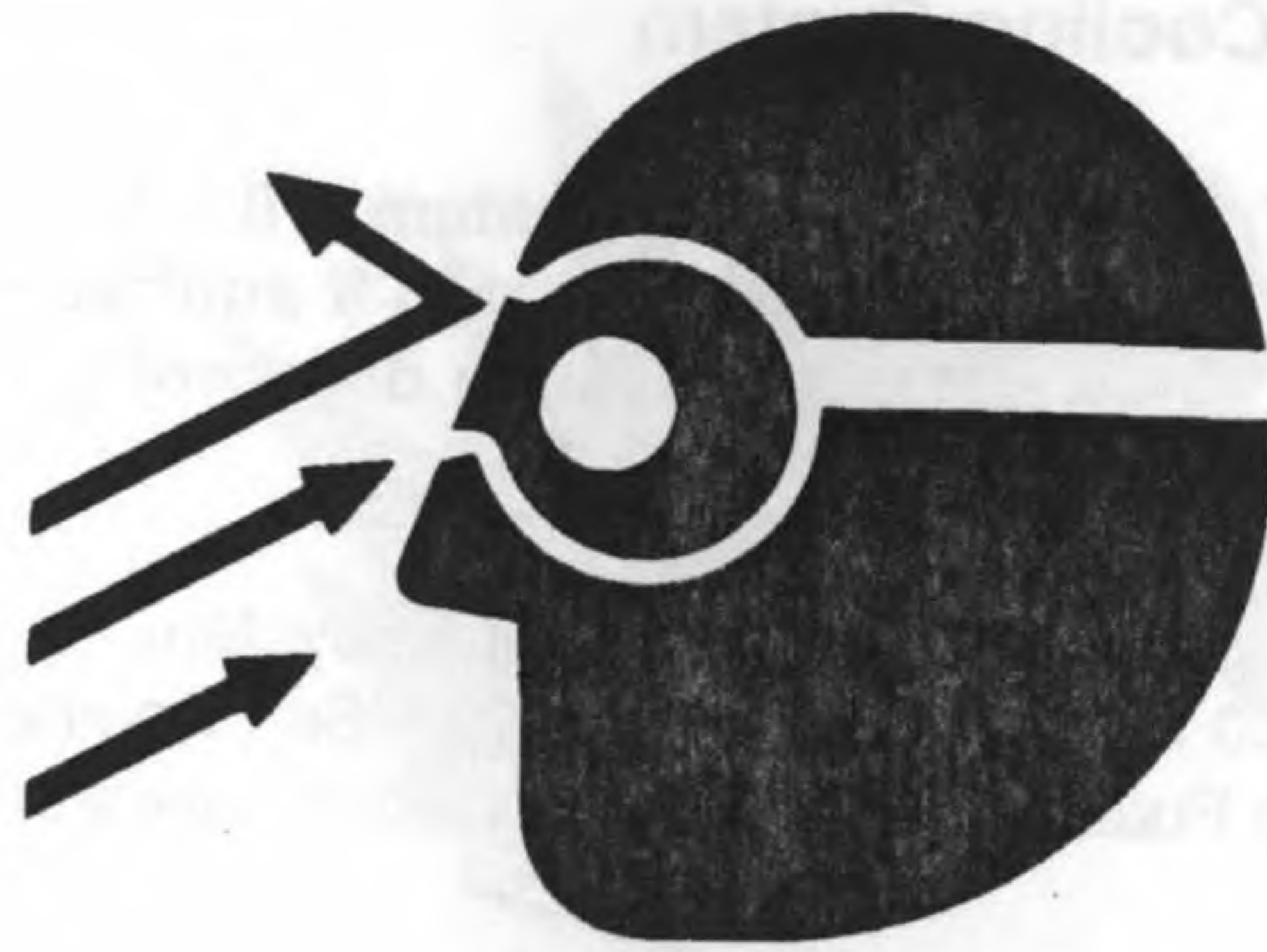
Cleaning Grille, Screens, Radiator and Oil Cooler

1. Whenever trash builds up on front grille (A) or side screens (B), stop engine and brush clean.

CAUTION: Reduce compressed air to less than 210 kPa (2 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.

2. Remove side screens (B), and see if trash has built up on radiator (C). If so, remove it using a brush or compressed air.
3. If a more thorough cleaning is necessary, clean radiator from behind with compressed air or water. Straighten any bent fins.

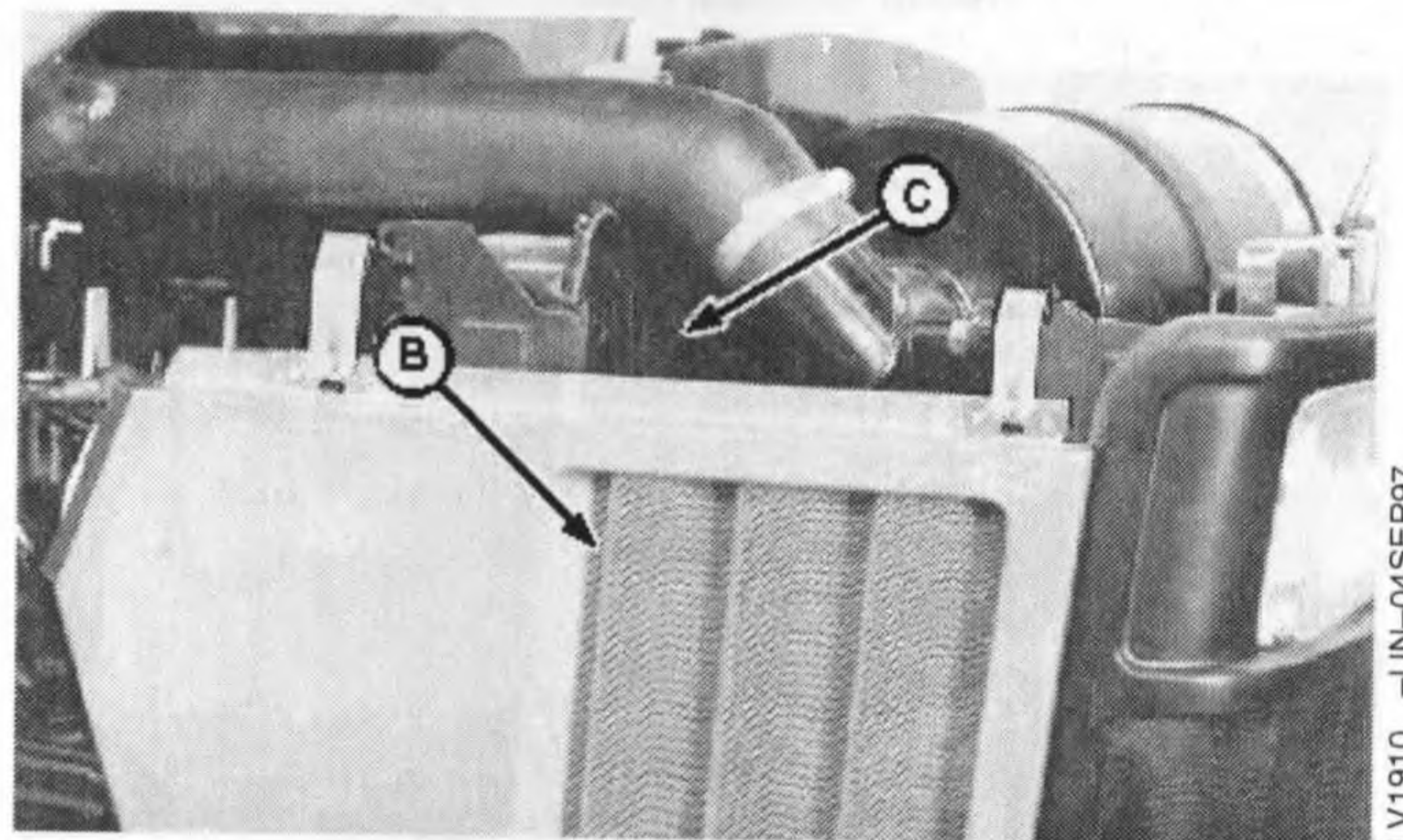
A—Grille
B—Side Screens
C—Radiator



TS266 -UN-23AUG88



LV1909 -UN-28APR97



LV1910 -UN-04SEP97

LV,5010S,P -19-27MAY99-1/1

Flush Cooling System

For efficient operation, drain old coolant, flush the entire system, and fill with clean antifreeze solution at least once every two years. (See procedure in Service—2 Years/2000 Hours section.)

LV,5400NSV,A21 -19-02JUN99-1/1

Winterize Cooling System

IMPORTANT: Draining cooling system WILL NOT protect against freezing if antifreeze is weak, since system does not drain completely.

1. Prior to cold weather, be sure cooling system contains 50 to 67 percent antifreeze. (See Engine Coolant in Fuels, Lubricants, and Coolant section.)

2. After adding antifreeze, run engine until it reaches operating temperature. This mixes solution uniformly and circulates it through the entire system.

MX,SEIP,UA2 -19-24JUL95-1/1

Prevent Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



DX,SPARKS -19-03MAR93-1/1

TS204 -UN-23AUG88

Observe Electrical Service Precautions

CAUTION: Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive. To avoid sparks, connect negative (ground) cable (B) last and disconnect it first. When using a booster battery, follow instructions in "Operating the Engine" section.

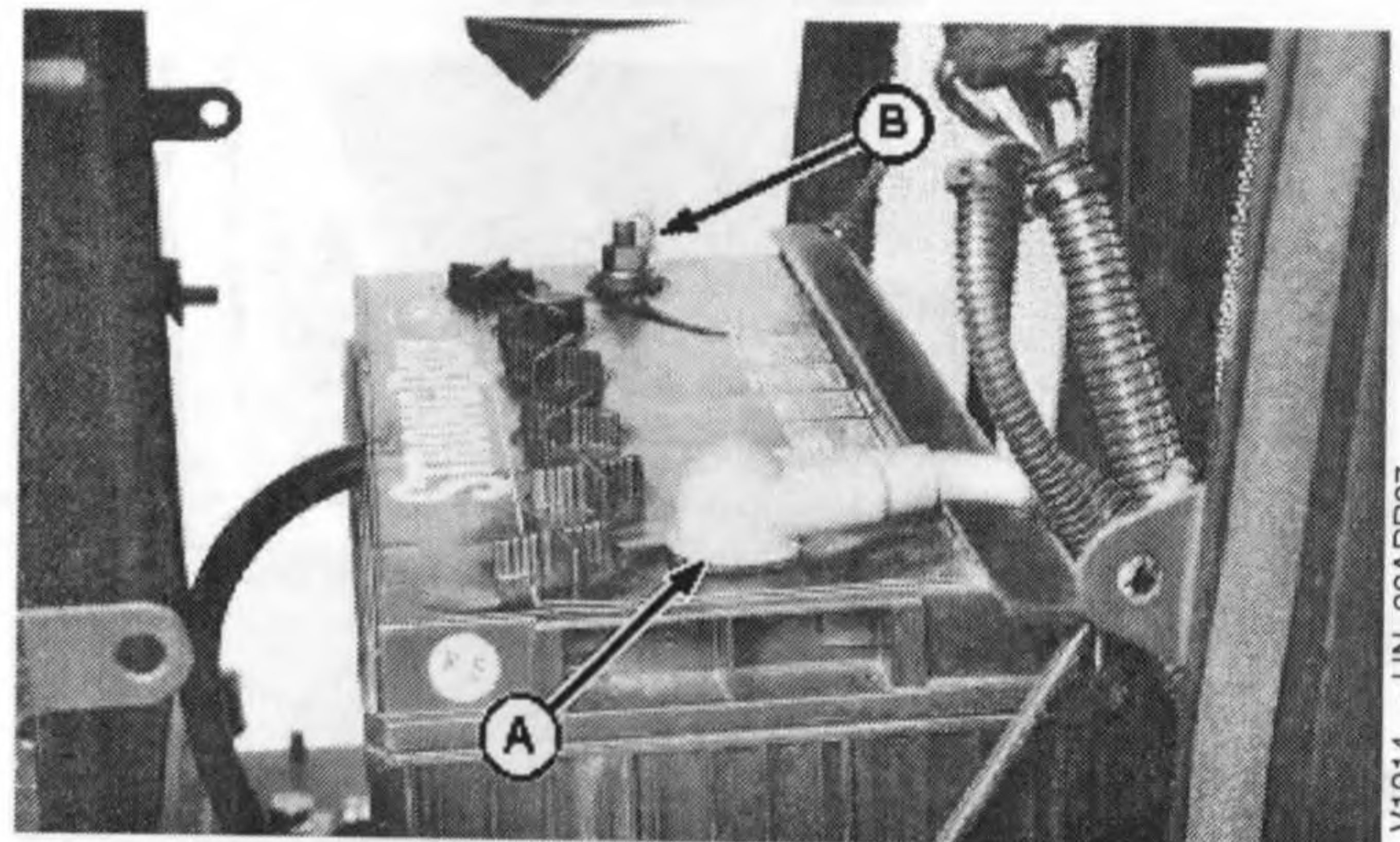
To avoid shocks and burns, disconnect battery negative (ground) cable (B) before servicing any part of the electrical system, then remove positive cable (A) if removing battery.

Keep all electrical shields in place.

A—Positive (+) Battery Cable
B—Negative (—) Battery Cable

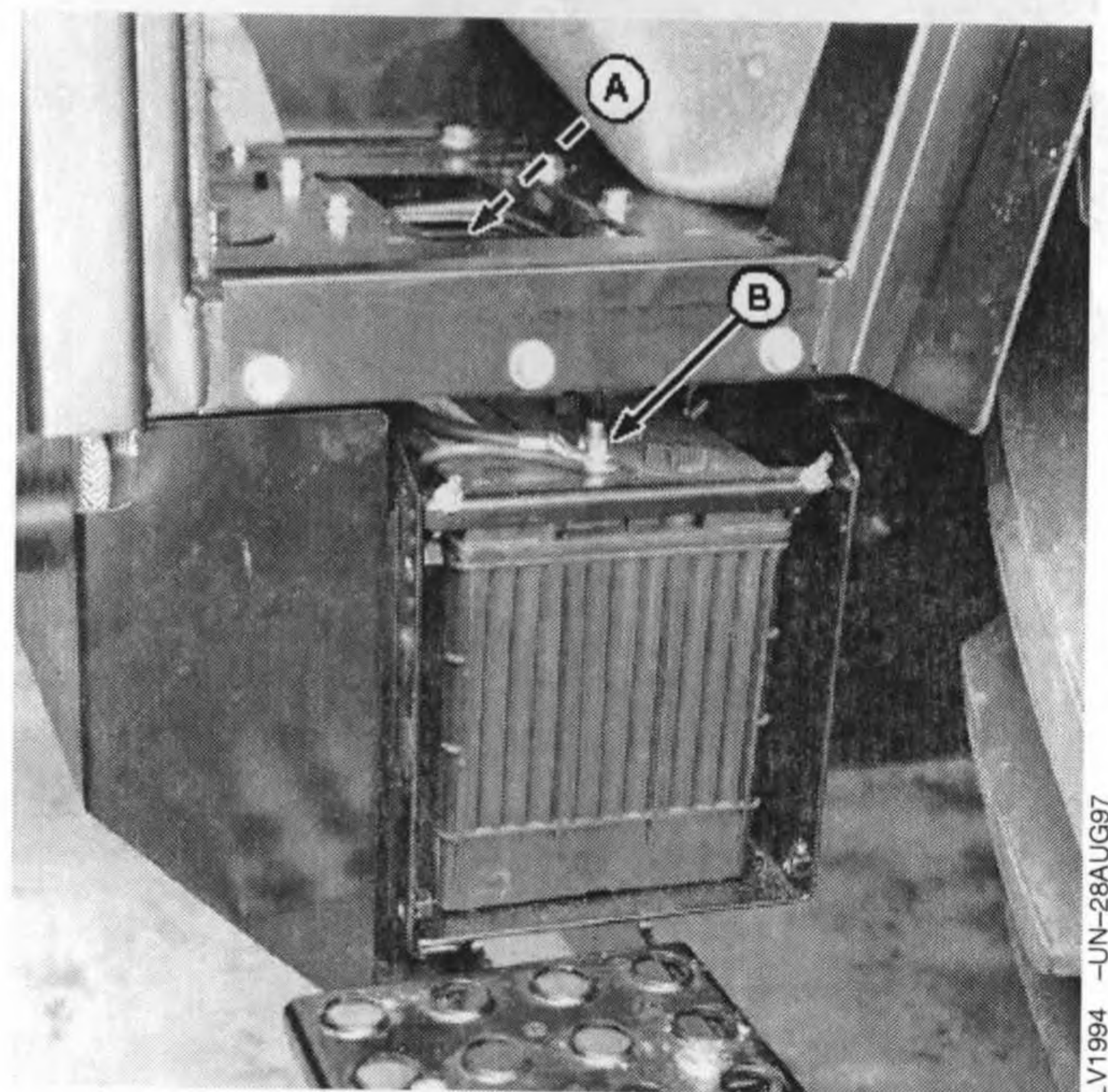


TS204 -UN-23AUG88



LV1914 -UN-28APR97

Open Station Machine Shown



LV1994 -UN-28AUG97

Cab Machine Shown

LV,5010S,S -19-29AUG97-1/1

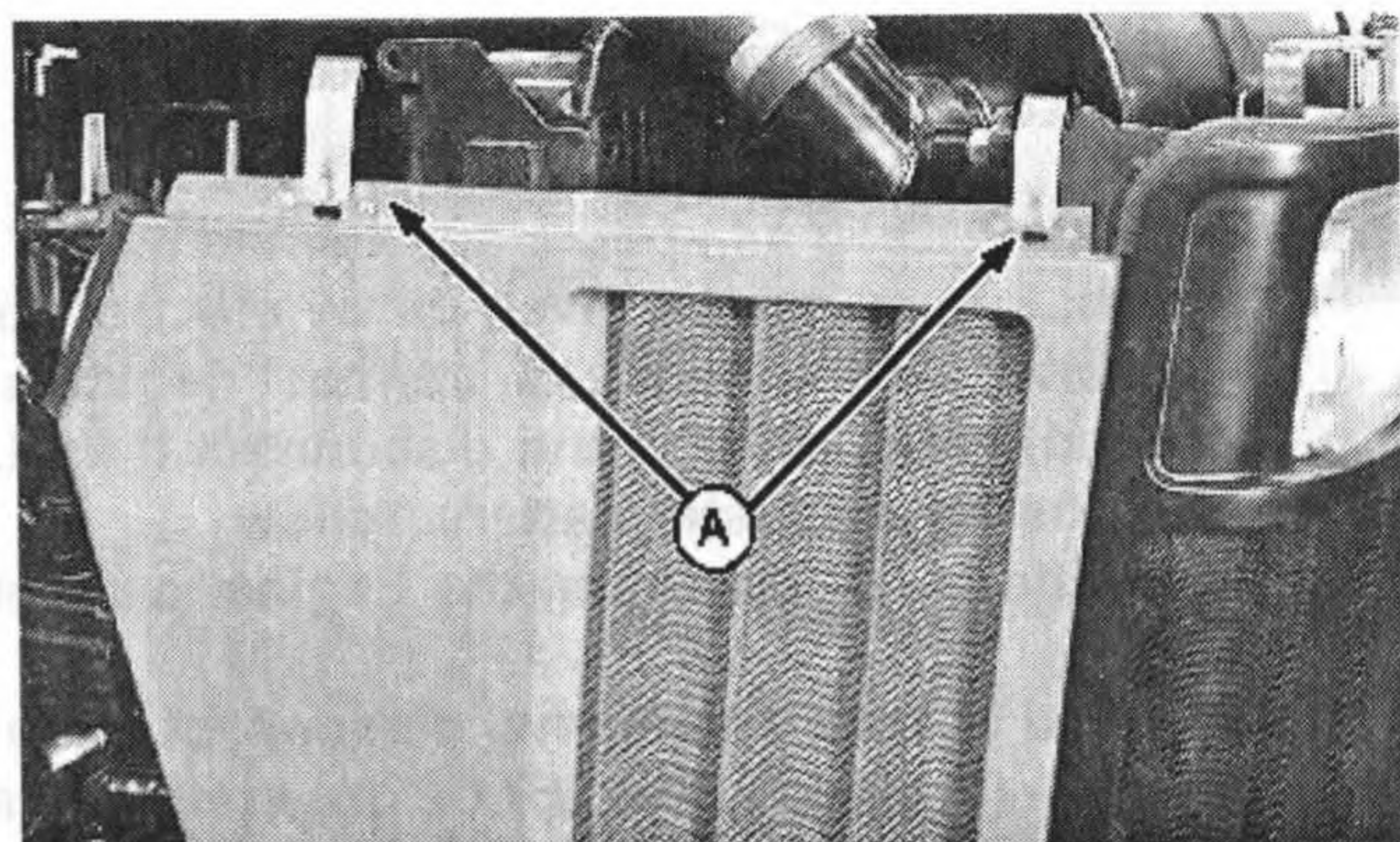
Battery Access—Open Station Machines

Battery is located in front of the radiator.

To gain access:

1. Raise the hood.
2. Rotate latches (A), and remove side screens from pegs. (See Removing Side Screens in this section.)

A—Latches



LV1764 -UN-28AUG97

LV,5010S,T -19-29AUG97-1/1

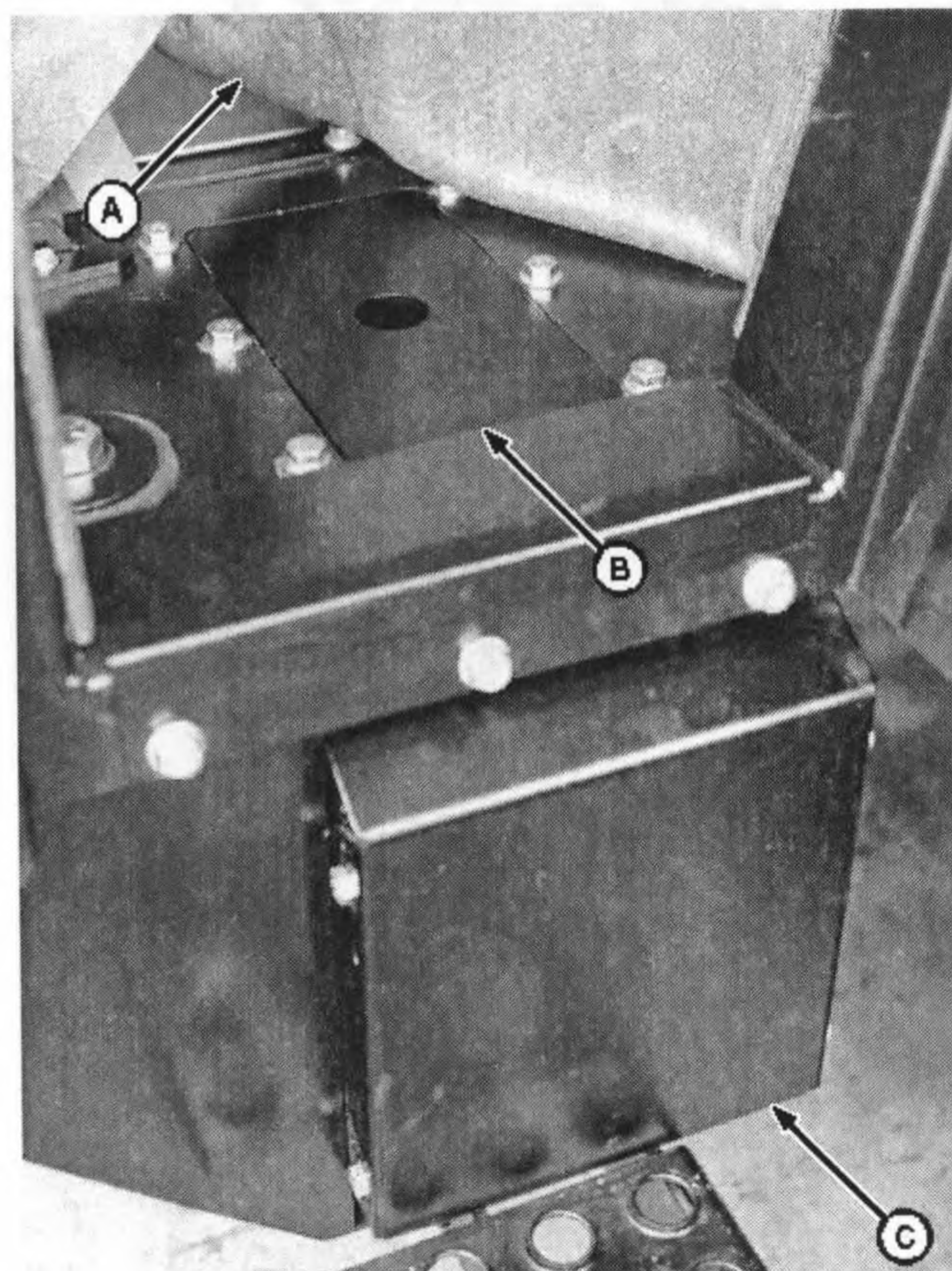
Battery Access—Cab Machines

Battery is located under cab on left-hand side.

To gain access:

1. Remove one screw in floor mat next to clutch pedal.
2. Pull back floor mat (A) and remove plate (B).
3. Remove four cap screws and side cover (C).

A—Floor Mat
B—Floor Plate
C—Side Cover



LV1986 -UN-27AUG97

LV,5010S,U -19-29AUG97-1/1

Removing Battery



CAUTION: To avoid sparks, disconnect negative (ground) cable first and connect it last.

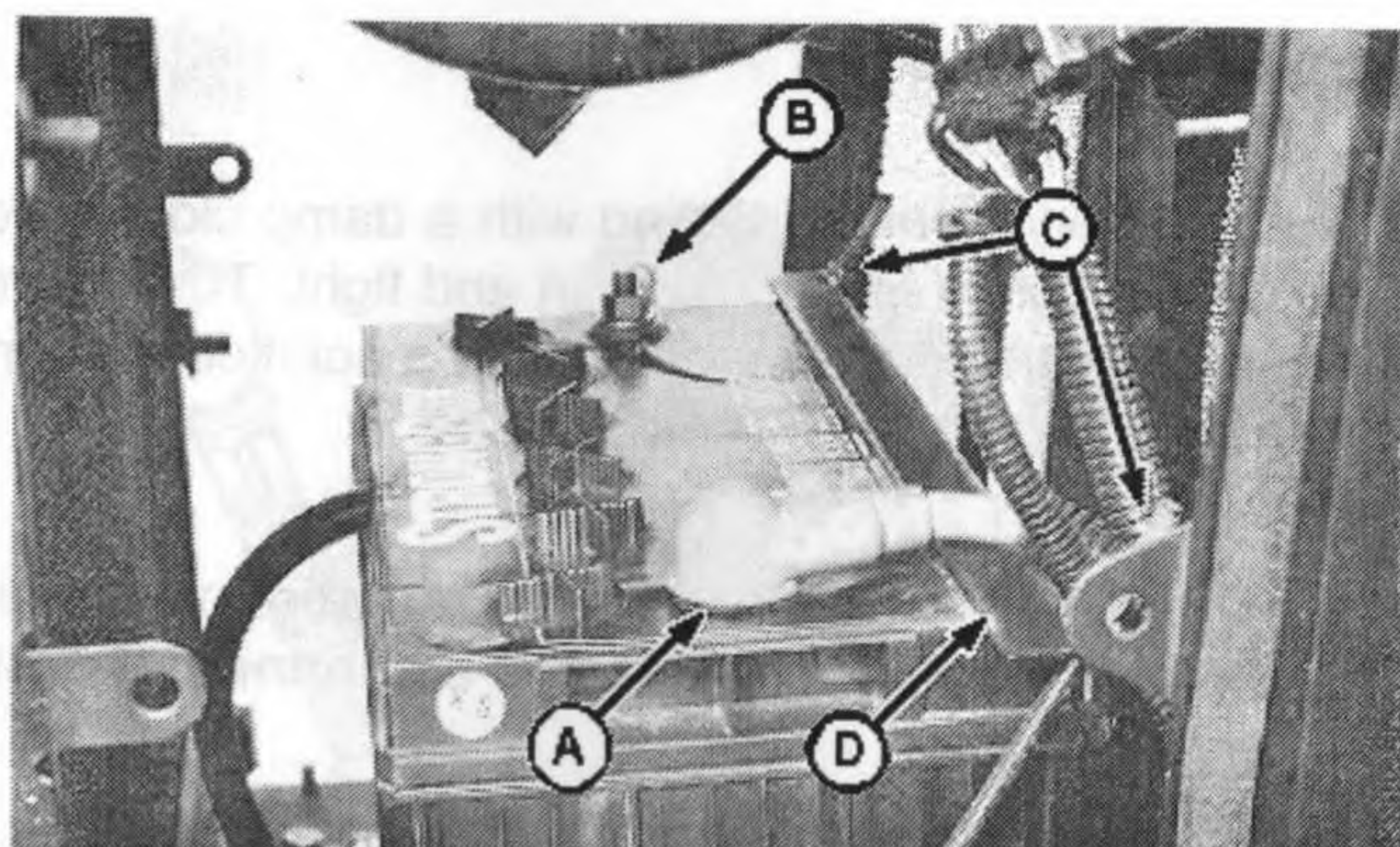
1. Remove nut retaining negative (ground) battery cable (B) and remove the cable connection. Then remove positive cable nut (A) and connection.

Open Station: Loosen nuts (C) securing battery hold-down (D) and rotate the holder down freeing the battery.

Cab: Remove vent tube (E), nuts (C) and battery hold-down (D).

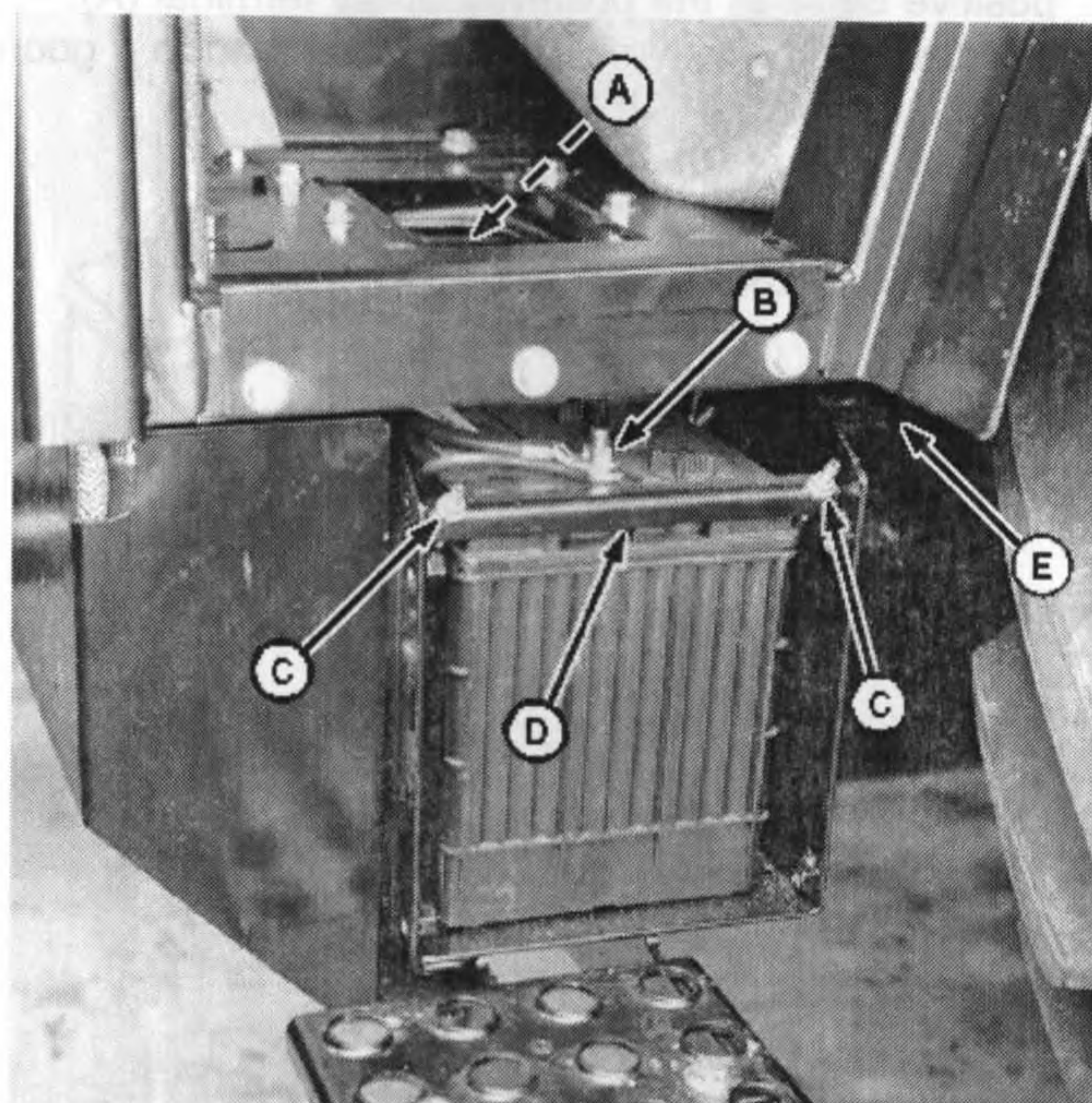
2. Lift and slide the battery from the battery tray.

A—Positive (+) Cable Nut
B—Negative (—) Cable Nut
C—Nuts
D—Battery Hold-Down
E—Vent Tube



Open Station Tractor

LV1915 -UN-28APR97



Cab Tractor

LV1987 -UN-27AUG97

LV,5010S,V -19-29AUG97-1/1

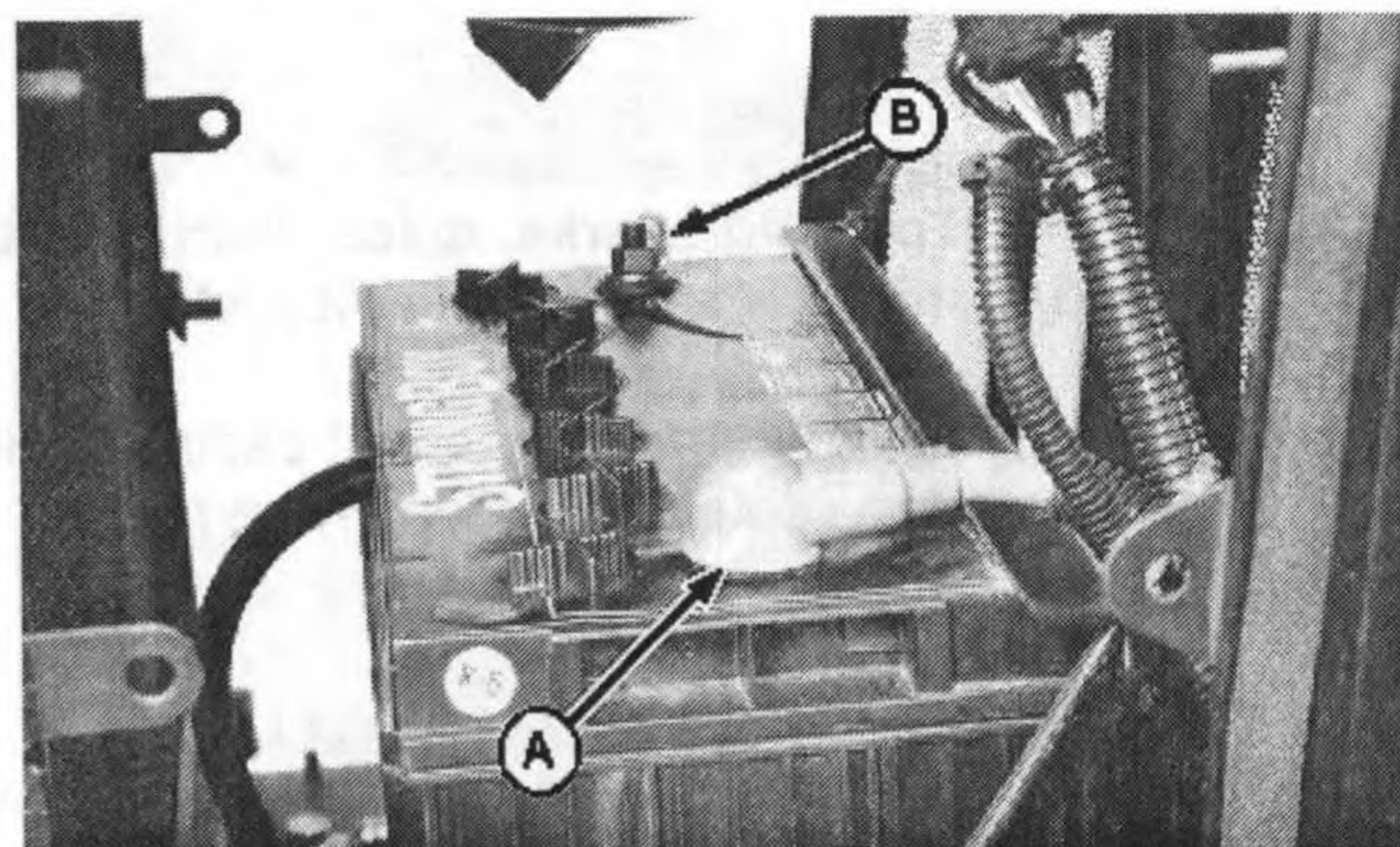
Servicing Battery

1. Keep battery clean by wiping with a damp cloth. Keep all connections (A and B) clean and tight. To remove any corrosion, wash terminals with a solution of four parts water to one part baking soda.

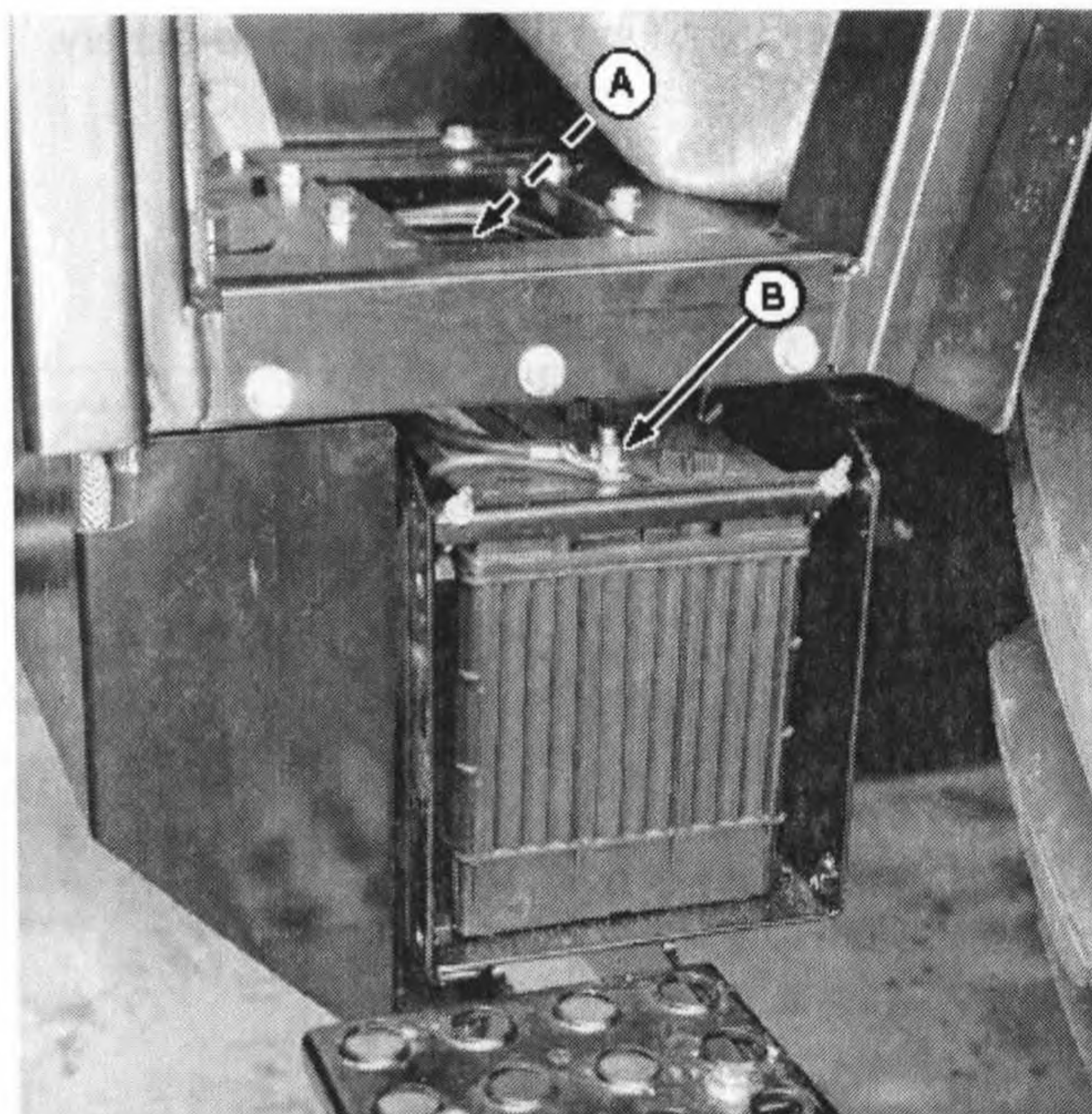
CAUTION: To avoid sparks, connect negative (ground) (—) cable last and disconnect it first.

2. Keep battery fully charged, especially during cold weather. If a battery charger is connected, attach a positive cable to the positive battery terminal (A). Connect the negative battery charger lead to a good ground on tractor frame.

A—Battery Connection
B—Battery Connection



Open Station Tractor



Cab Tractor

Continued on next page

LV,5010S,AJ -19-03JUN97-1/2



CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.

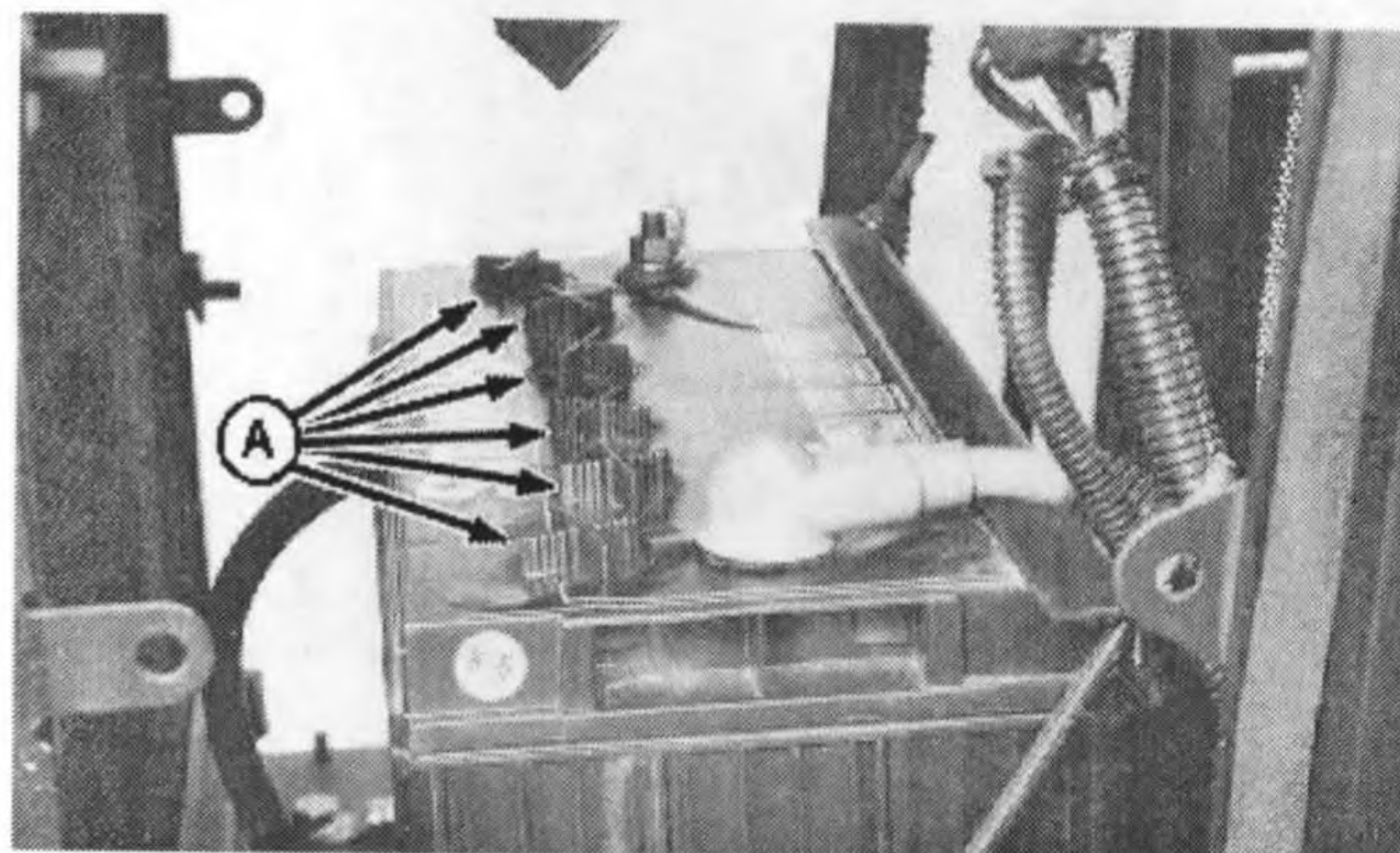
IMPORTANT: DO NOT add water in freezing weather unless tractor will be run at least 30 minutes to assure thorough mixing.

3. Check level of electrolyte in each cell (A) at least every 250 hours. If low, fill to bottom of filler necks with CLEAN, SOFT water. DO NOT OVERFILL.
4. Coat terminals with a small amount of grease.

A—Battery Cells

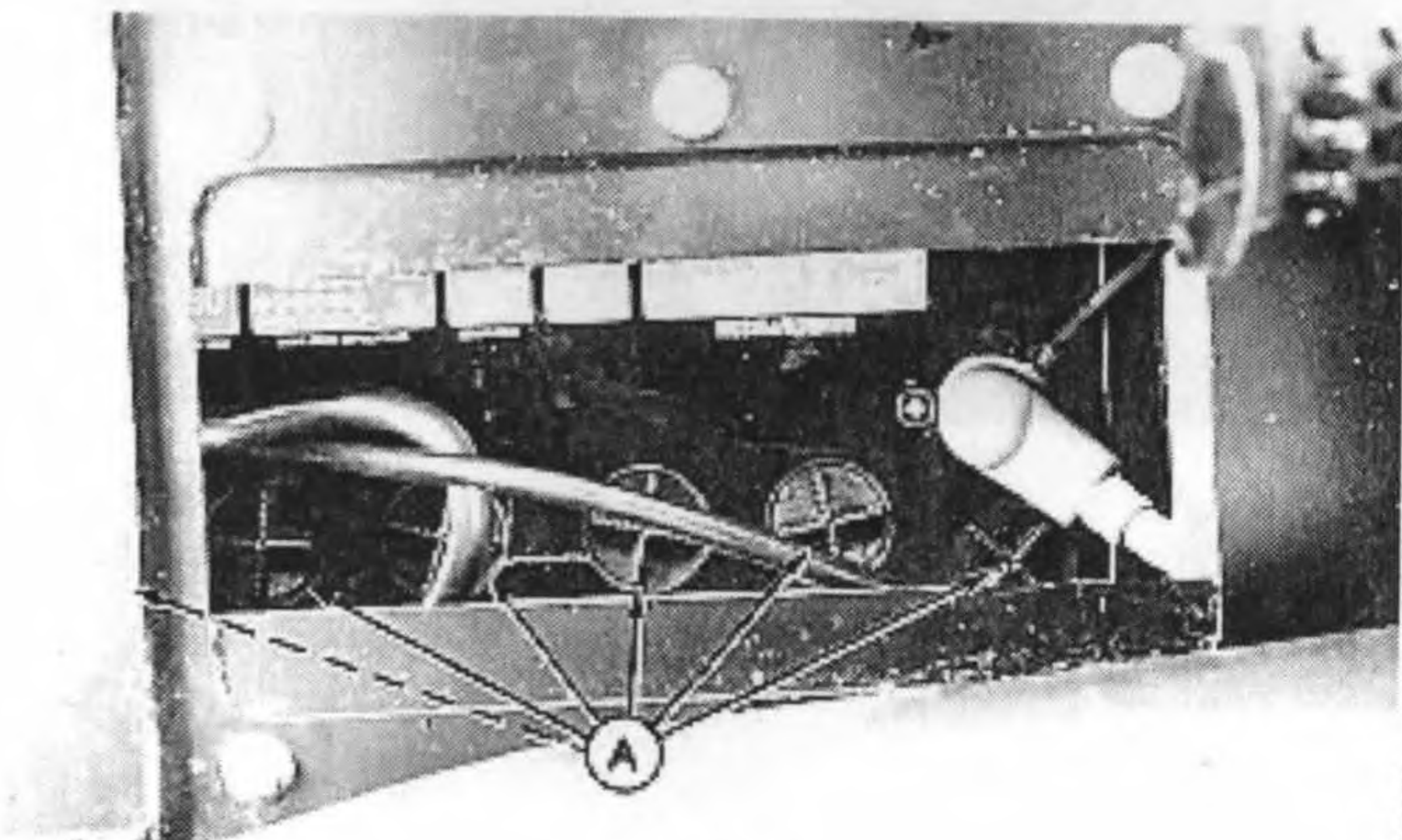


TS203 -UN-23AUG88



Open Station Tractor

LV1916 -UN-28APR97



Cab Tractor

LV891 -UN-21DEC95

Battery Replacement Specifications

When replacing battery, use John Deere battery or equivalent. See your John Deere Dealer.

Specification

Battery Volts	12 Volts
BCI Group—Open Station.....	28 H
BCI Group—Cab	31
Cold Cranking Amps (CCA) at.....	700
-18°C (0°F)	

LV,5010S,X -19-03JUN97-1/1

Charging Battery

Keep battery fully charged, especially during cold weather.

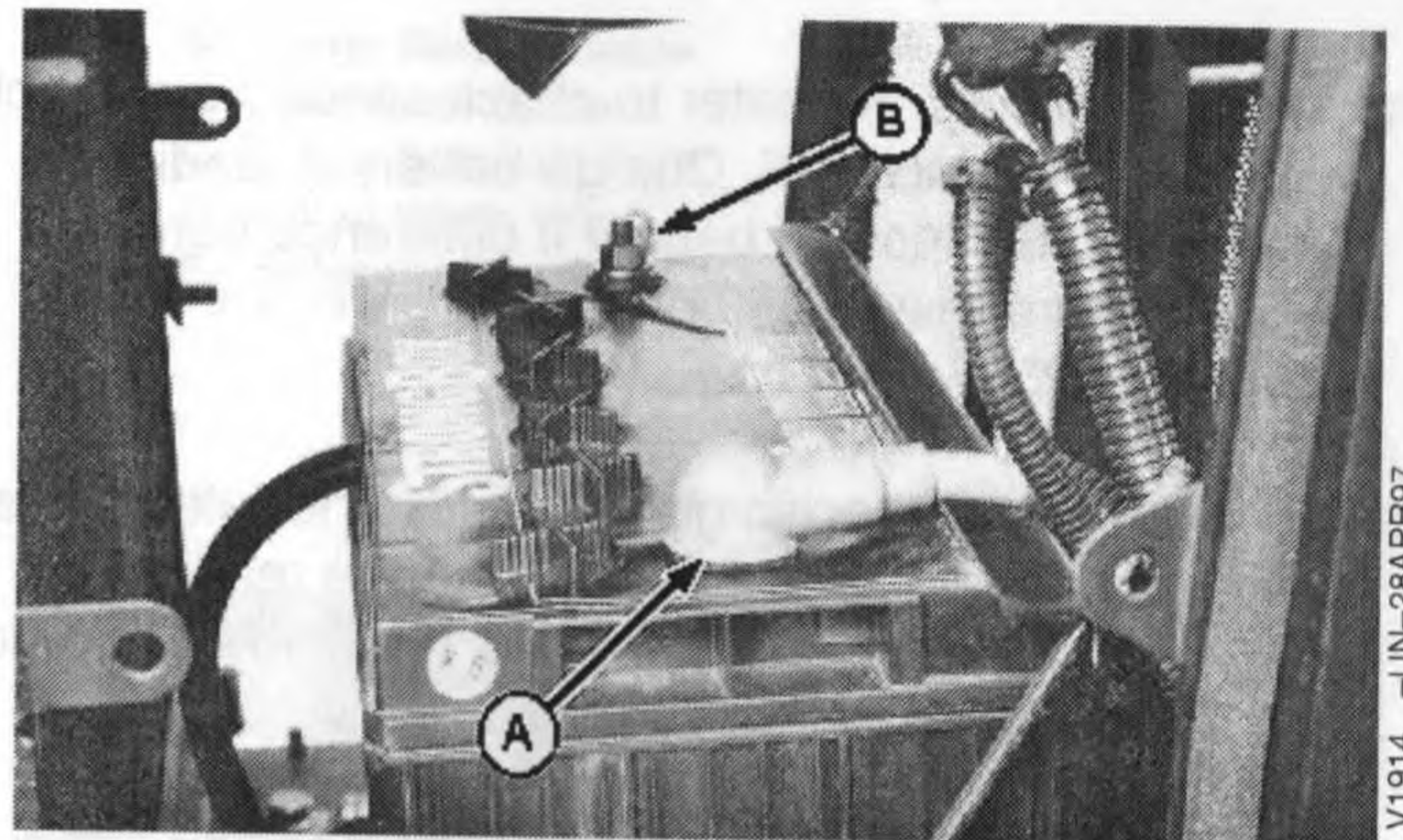
CAUTION: Gas given off by battery is explosive. Keep sparks and flames away from battery. Before connecting or disconnecting a battery charger, turn charger off. Make last connection and disconnection at a point away from battery.

1. With charger off, attach positive battery charger lead to positive (+) battery terminal (A). Attach negative charger lead to negative (—) battery terminal (B), or to tractor frame away from the battery.
2. Turn charger on and recharge the battery following battery manufacturer's instructions for using charger. Check battery condition as described below.
3. To disconnect battery charger, turn charger off. Remove negative charger lead first, follow by positive charger lead.

A—Positive (+) Battery Terminal
B—Negative (—) Battery Terminal

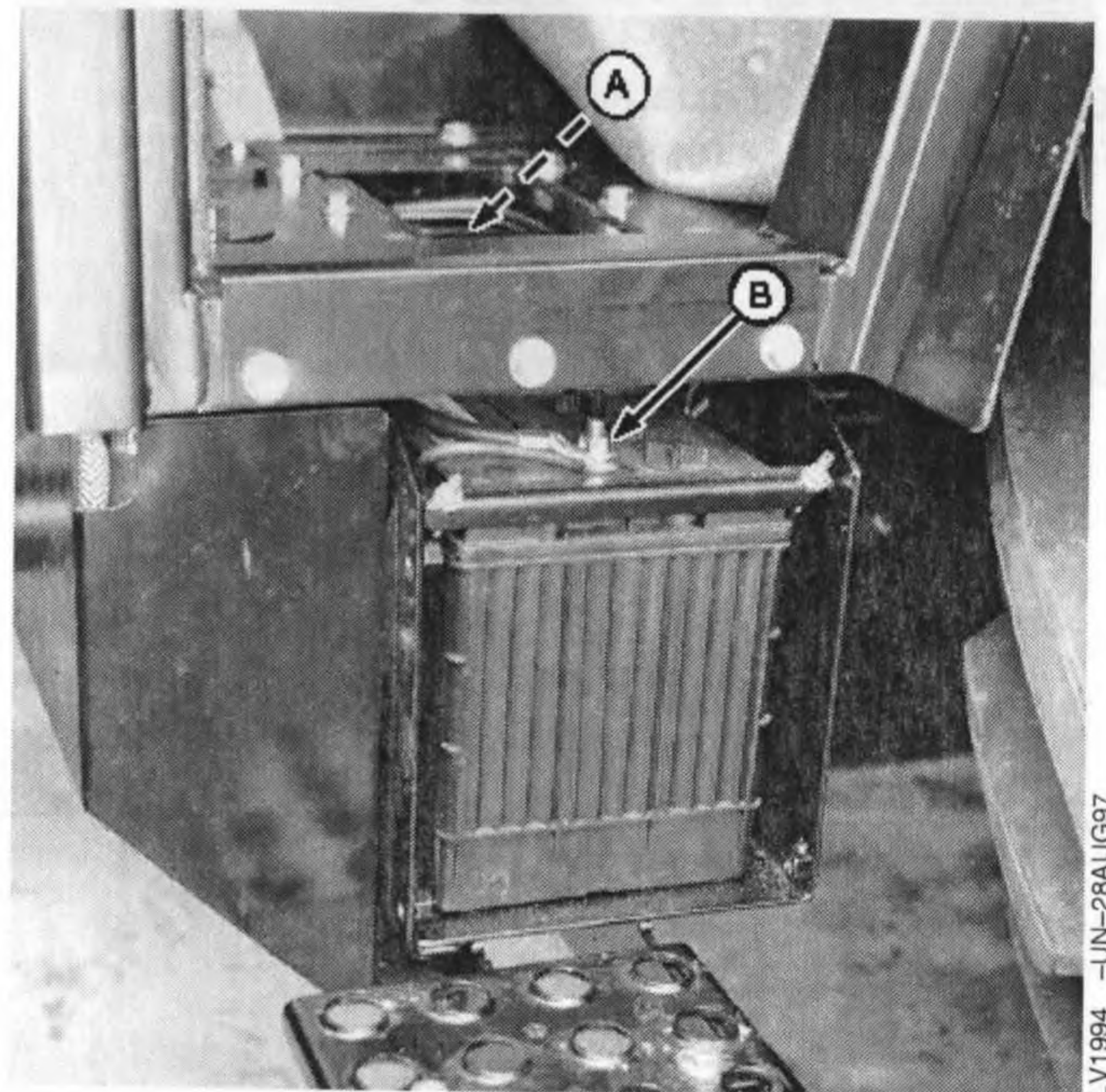


TS204 -UN-23AUG88



LV1914 -UN-28APR97

Open Station Tractor



LV1994 -UN-28AUG97

Cab Tractor

LV,5010S,Y -19-29AUG97-1/1

Checking Battery Condition



CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (—) battery clamp first and replace it last.



1. Use a battery hydrometer to check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.215. Replace battery if difference between cells is more than 0.050 or if battery will not charge above 1.225.
2. Always correct specific gravity reading for electrolyte temperature variation. Add 0.004 to the reading obtained in step one for every 10°F above 80°F (add 0.007 to the reading for every 10° above 27°C). Subtract at same rate if electrolyte temperature is below 80°F (27°C). Corrected specific gravity of a fully charged battery is from 1.265 to 1.280.
3. A battery is considered fully charged when three consecutive hydrometer readings, taken at hourly intervals, show no rise in specific gravity.

TS204 -UN-23AUG88

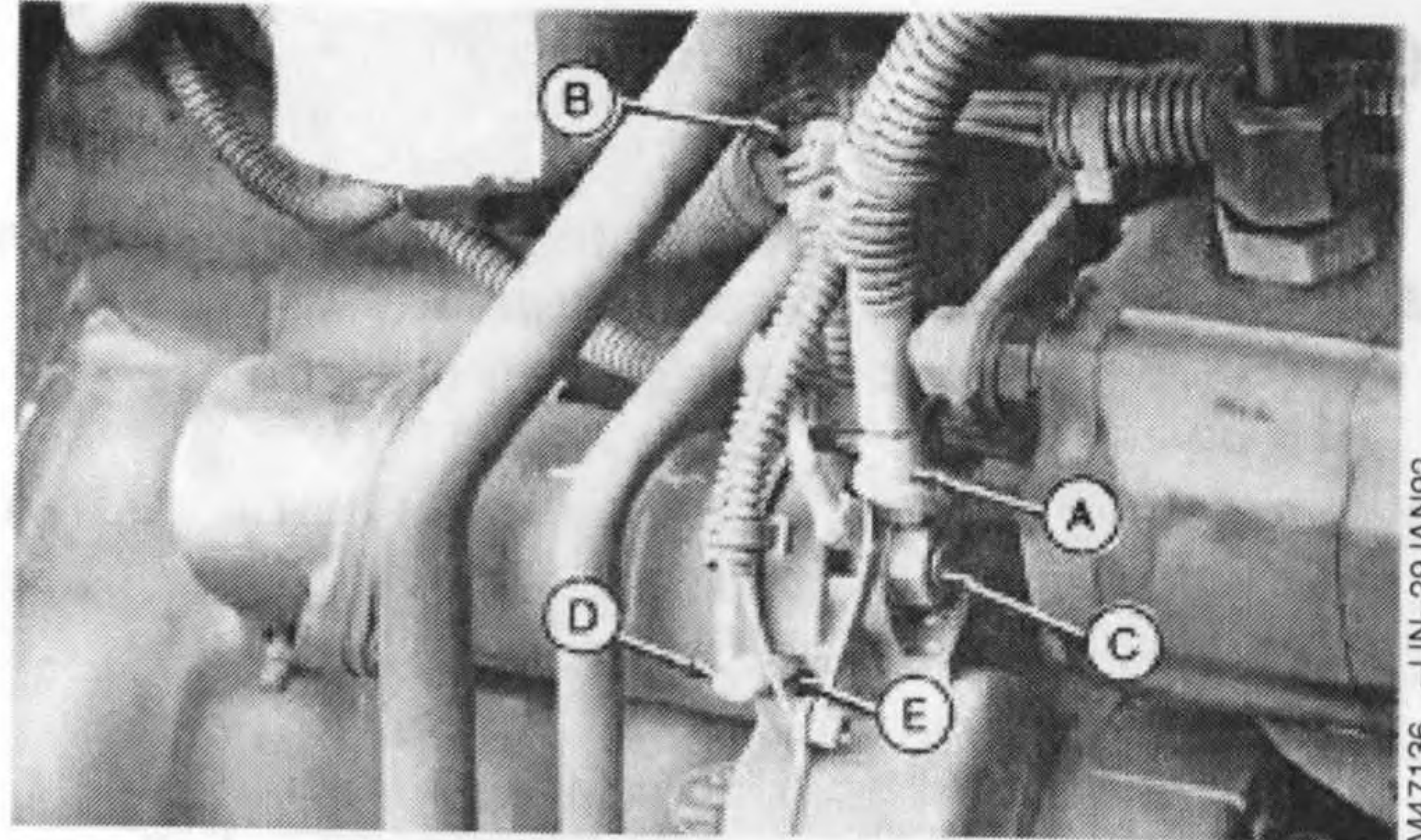
MX,SEIP,CCA2 -19-24JUL95-1/1

Connecting Starter Wiring

NOTE: 5210 and 5310 shown, 5410 and 5510 similar.

IMPORTANT: Disconnect battery negative (ground) cable before servicing any part of electrical system. Make all other connections before connecting ground cable.

Connect large battery cable (A) and alternator cable (B) to large solenoid post (C). Connect the small white wire (D) to solenoid terminal (E).



A—Large Battery Cable
B—Alternator Cable
C—Large Solenoid Post
D—Small White Wire
E—Solenoid Terminal

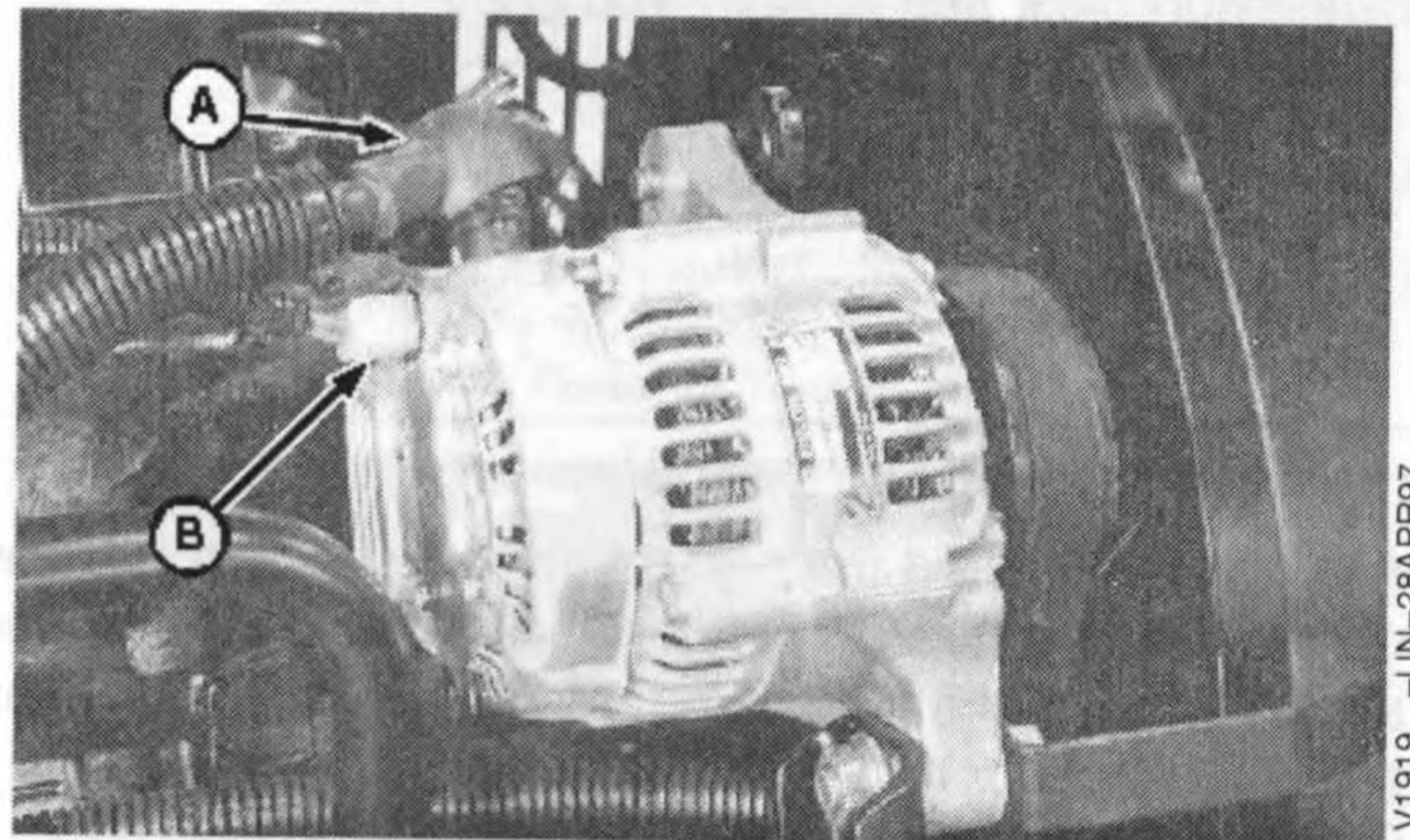
LV,5010S,Z -19-29AUG97-1/1

Connecting Alternator Wiring

IMPORTANT: Disconnect battery negative (ground) cable before servicing any part of electrical system. Make all other connections before connecting ground cable.

To prevent damage to electrical system, disconnect alternator before making any electrical weld repairs. If an attached implement needs weld repair, disconnect it from tractor before welding, to prevent damage to tractor electrical system.

If alternator is disconnected for any reason, connect wires (A) and (B) as shown at right.



A—Alternator Wire
B—Alternator Wire

LV,5010S,AB -19-03JUN97-1/1

Servicing Air Conditioner



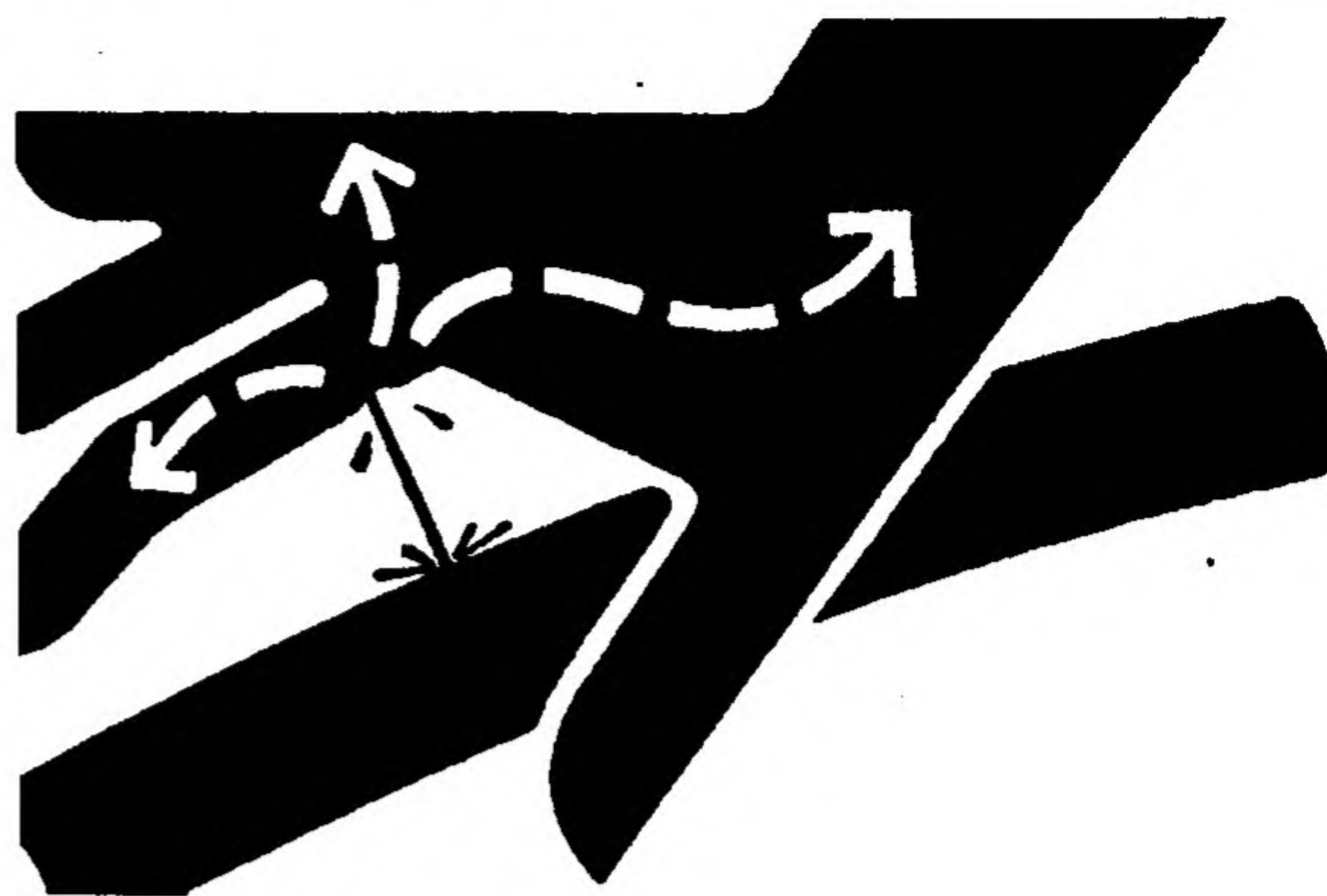
CAUTION: Refrigerant under pressure. Improper servicing may cause refrigerant to penetrate eyes and skin or cause burns.

IMPORTANT: R134a refrigerant must be used. This requires special equipment and procedures. See your John Deere dealer.

NOTE: Some oil seepage from compressor shaft seal, on the lower front, is normal.

Check the following if air conditioner will not cool, or cooling is intermittent:

If air conditioner clutch slips after tractor has been in storage, compressor may be stuck. Stop engine and turn key switch to OFF position. Remove clutch cover. Rotate clutch hub back and forth to free compressor.



X9811 -UN-23AUG88

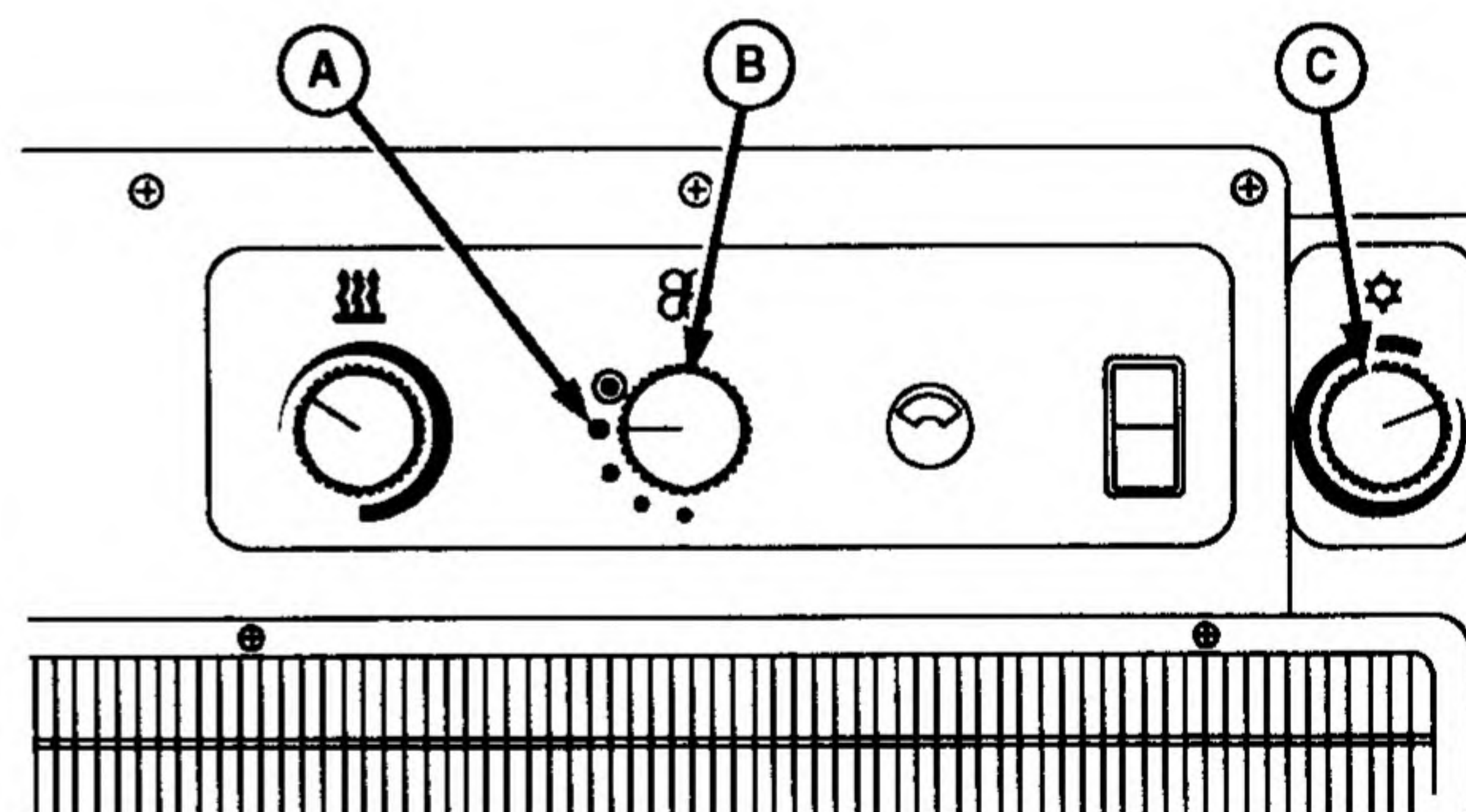
LV,5010S,AC -19-09SEP97-1/2

A/C dryer is located under right-hand floor plate. Remove right-hand crop guard to access sight glass. Run engine at 2000 rpm. Set air conditioner knob (C) to ON position and set blower control knob (B) to HIGH position (A). Check sight glass for bubbles. If bubbles do not disappear, system may be low on refrigerant. See your John Deere dealer.

NOTE: Bubbles may appear in sight glass when operating at temperatures below 18°C (65°F). This is normal. Bubbles will disappear as temperature rises.

If cooling is intermittent, clean front grille, side screens, radiator and condenser. (See procedure in this section.) If problem is not solved, see your John Deere dealer.

Inspect operator enclosure (cab) filters for restriction. Clean filters. (See procedure in Service—250 Hours section.) If problem persists, see your John Deere dealer to have evaporator core cleaned.



Controls—Overhead Panel

A—High Position
B—Blower Control Knob
C—A/C Knob

LV2001 -UN-08SEP97

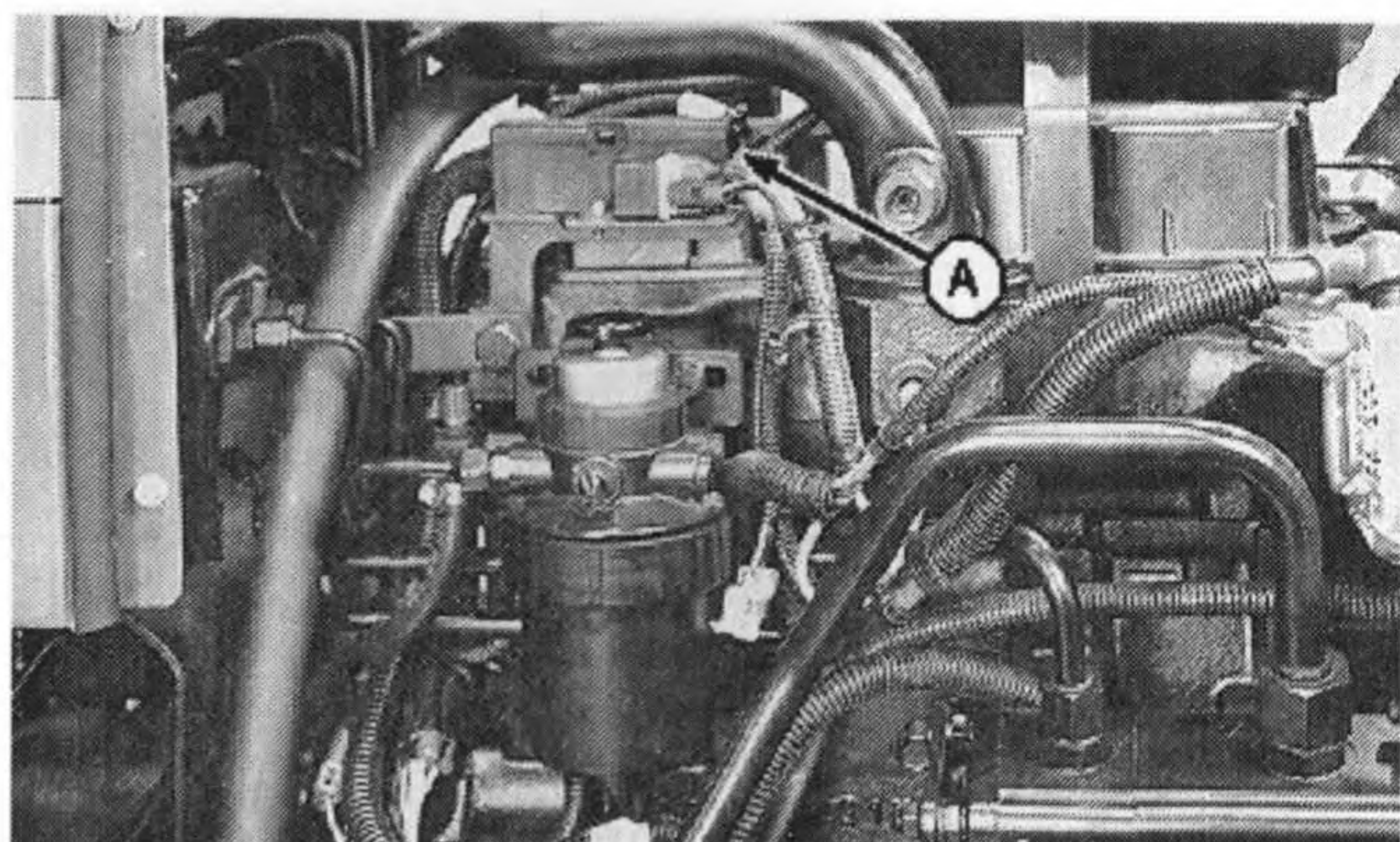
LV,5010S,AC -19-09SEP97-2/2

Locating Fusible Link

Electrical circuits are protected by fusible link(s).

Fusible link (A) is located under hood on right-hand side of tractor, above fuel filter.

A—Fusible Link



LV1920 -UN-29MAY97

LV,5010S,AD -19-29AUG97-1/1

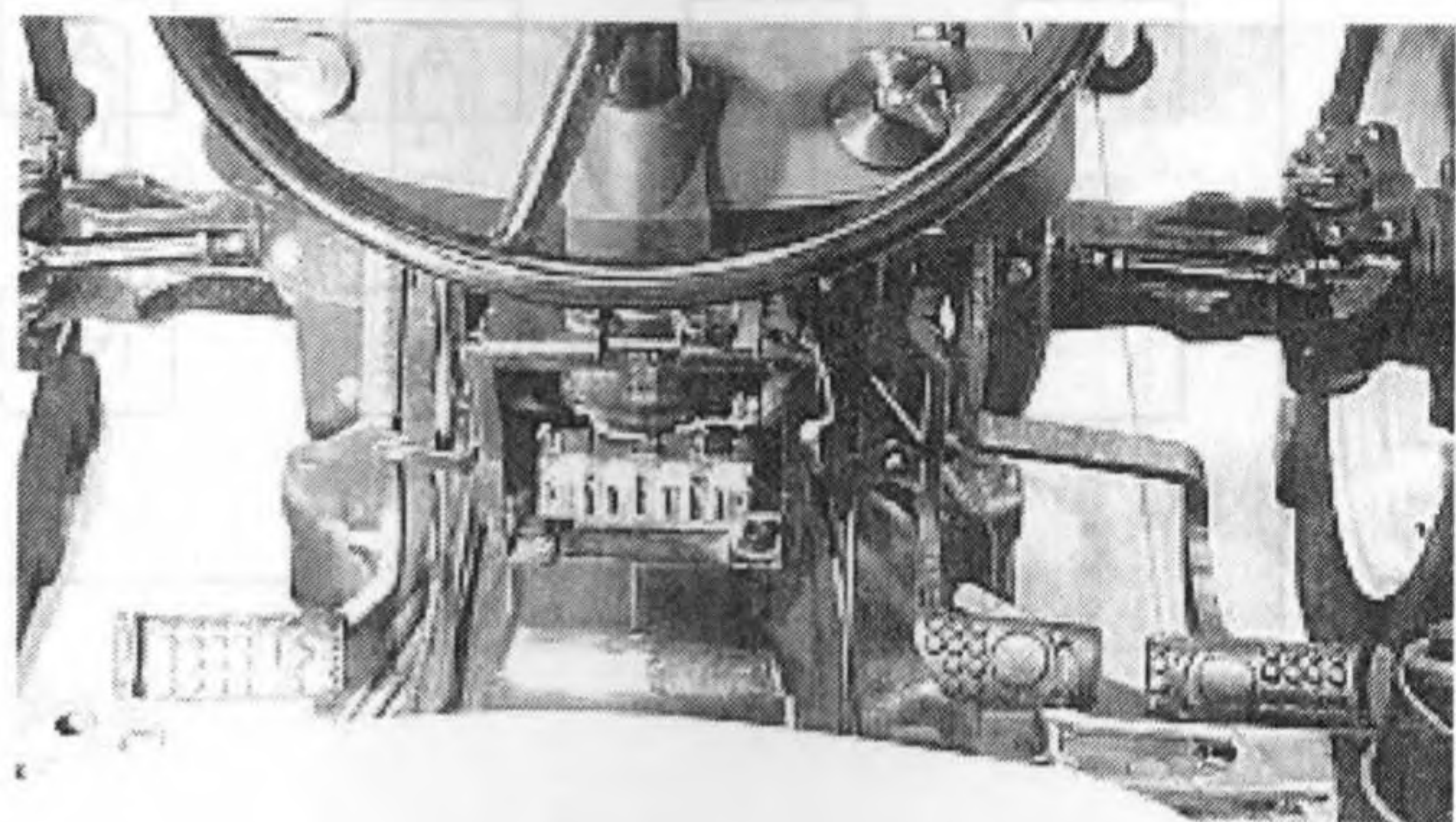
Locating Fuses

NOTE: Front key switch panel is removed for photo purposes.

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse, plus fuses are color coded to ensure proper replacement.

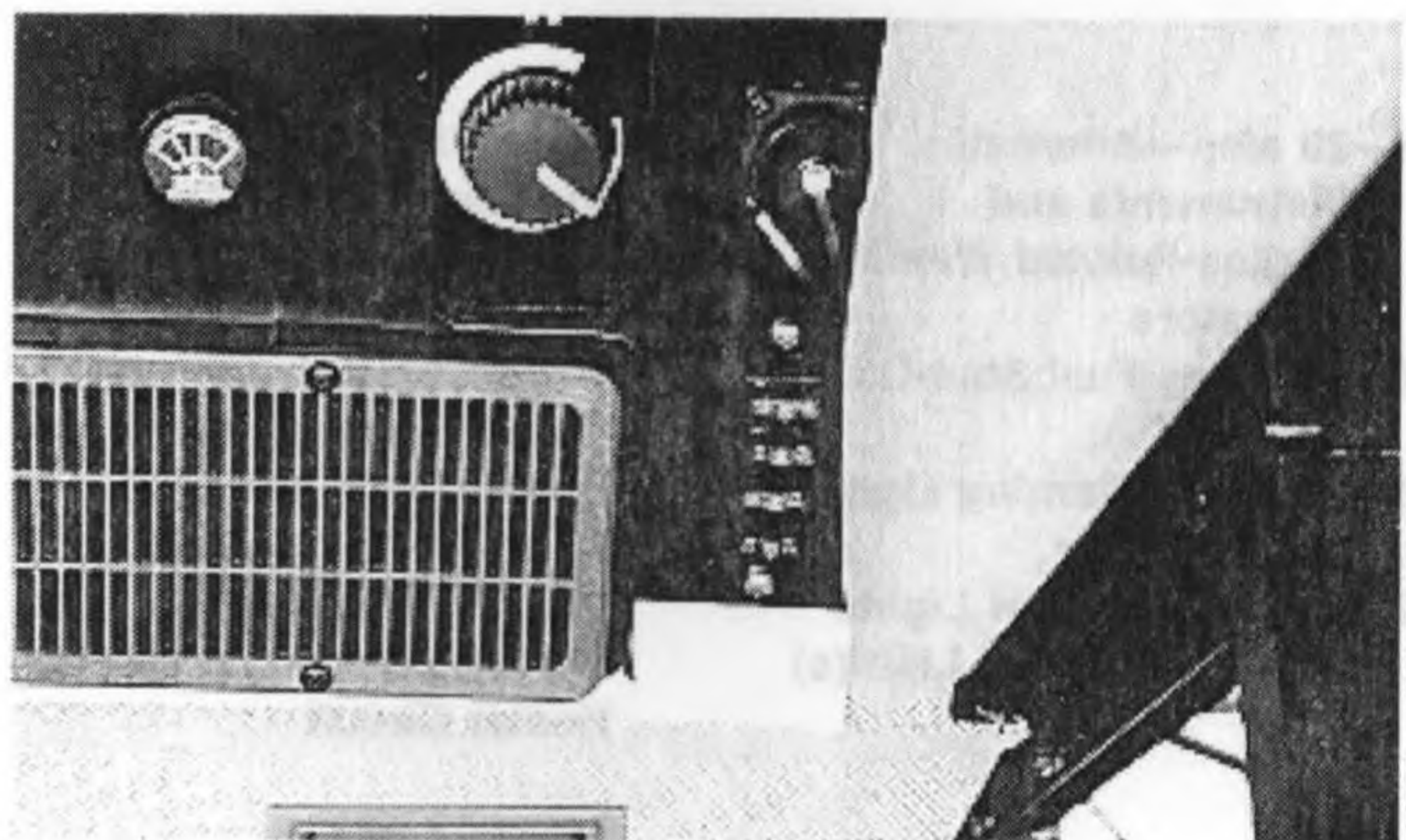
Fuse Rating	Color
10 Amp	Red
20 Amp	Yellow
30 Amp	Green

IMPORTANT: DO NOT replace original fuse with higher rated fuse or machine damage may occur. If original size fuse will not carry electrical load and continues to blow, have the electrical system checked by your John Deere dealer.



LV855 -UN-21JUL95

Fuses for Tractor

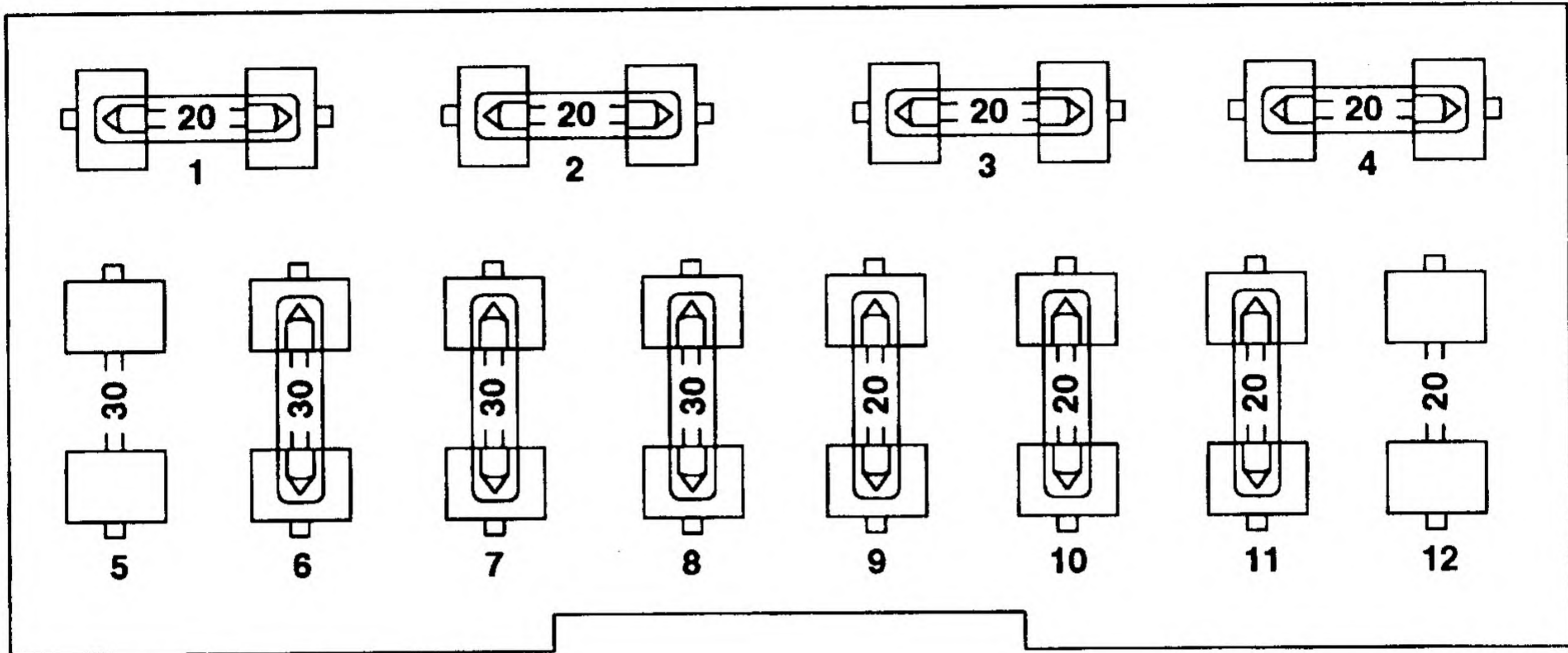


LV894 -UN-21DEC95

Fuses for Cab—Overhead Panel

LV,5010S,AE -19-06JUN97-1/1

Fuse Size and Function—Tractor



- 1—20 amp—Alternator, Instruments and Engine-Related Warning Indicators
- 2—20 amp—Fuel Shut-Off Solenoid
- 3—20 amp—Warning Lights and Indicator
- 4—20 amp—Fender Lights (5510) and Flood Light(s)

- 5—Open Station: 30 amp—Auxiliary Circuit ("Hot" all the time)
- 6—Cab: 30 amp—Dome Light, Wipers/Washer, Accessory Outlet (Terminal No. 2) and Radio ("Hot" terminal)
- 7—30 amp—Key Switch, Starting Circuit, PTO Warning Circuit, Manifold Heater Circuit

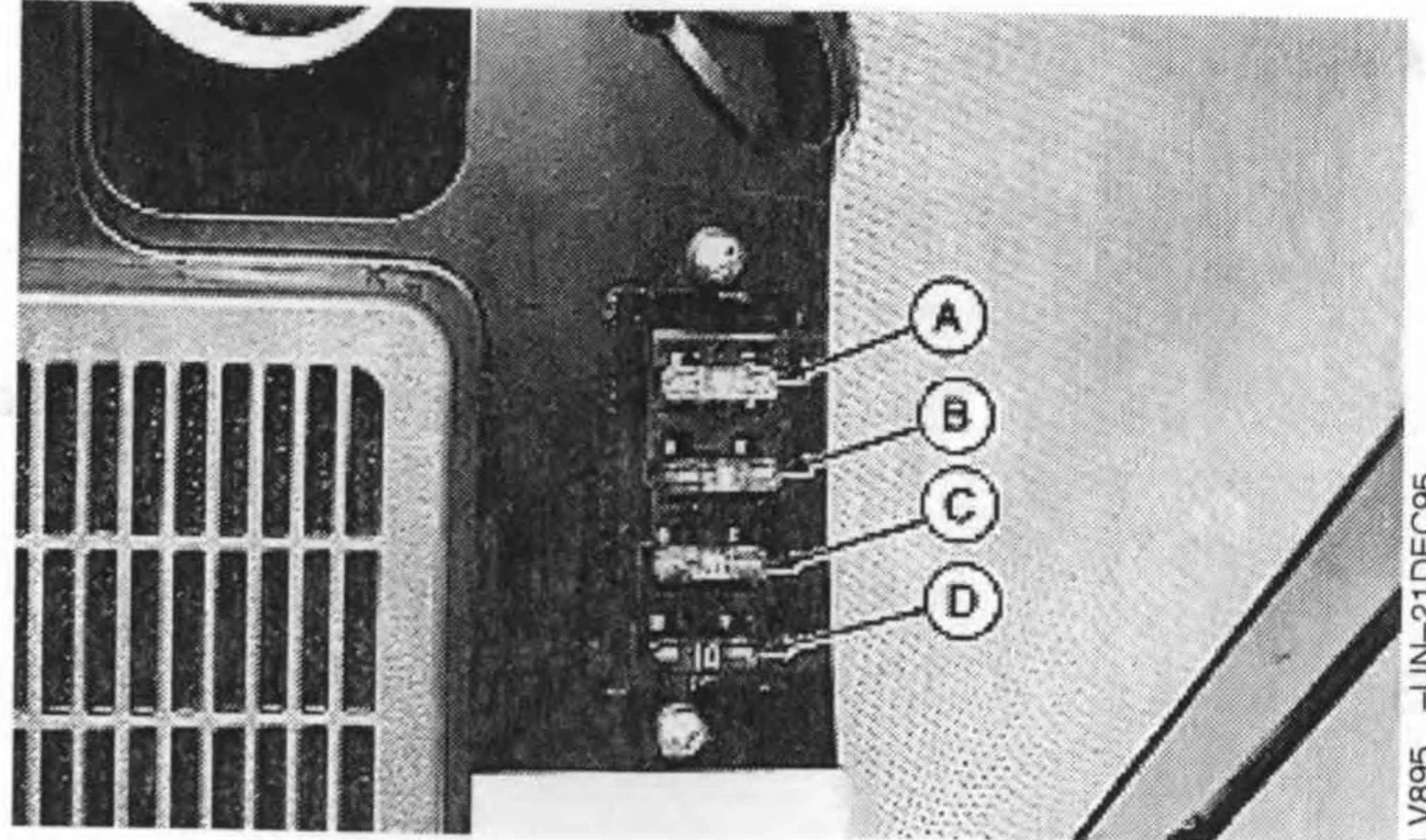
- 8—30 amp—Horn, Lights, Turn Signals
- 9—30 amp—Accessory Relay
- 10—20 amp—Tail Light(s)
- 11—20 amp—High-Beam Headlights and Indicator
- 12—20 amp—Low-Beam Headlights

- 13—Open Station: 20 amp—Auxiliary Circuit (Key Activated)
- 13—Cab: 20 amp—Accessory Outlet (Terminal No. 1) and Radio ("Key" Activate Terminal)

LV,5010S,AF1 -19-25FEB99-1/1

Fuse Size and Function—Cab

- A—30 amp—Left Blower Motor
- B—30 amp—Flood Lights
- C—30 amp—Right Blower Motor
- D—10 amp—Air Conditioning Circuit



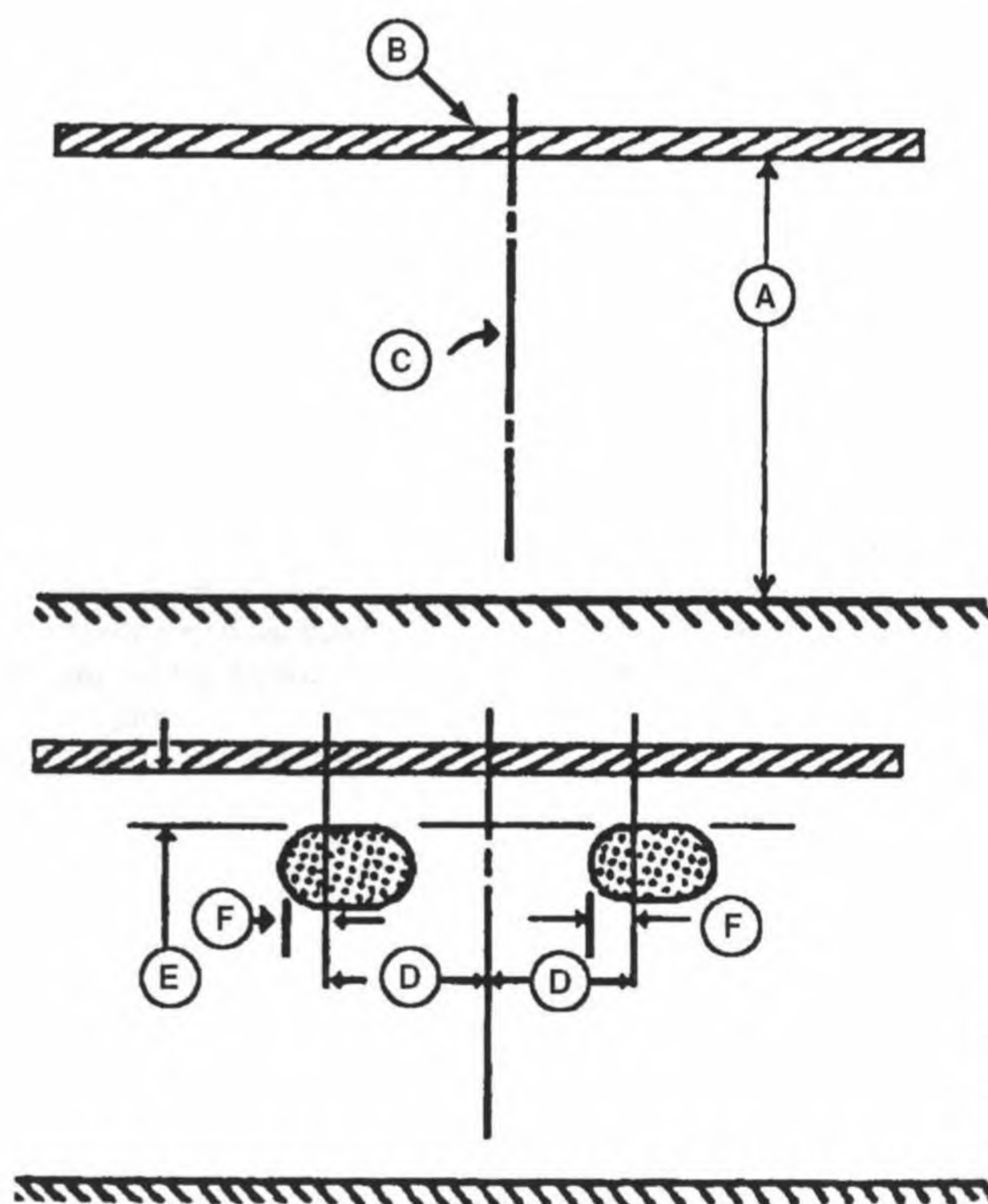
LV,SEIP,SSA3 -19-20JAN96-1/1

Aiming Headlights

1. Park tractor on level ground, with lights 8 m (25 ft) from a wall.
2. Measure from top of hood to the ground (A). Place a strip of masking tape (B) on the wall at the same height.
3. Place a piece of tape, folded in the middle to make a point, on the top front center of the hood.
4. Using the hood tape as a guide, sight across steering wheel and hood to locate tractor centerline. Mark tractor centerline (C) on wall.
5. From tractor centerline (C), mark a point 130 mm (5 in.) out in each direction (D). This mark locates a point directly in front of center of each headlight.
6. Turn light switch to dim position.
7. Locate small zone of bright light projected by each lamp. Cover other lamps if necessary. Top of zone (E) should be 130 mm (5 in.) below the tape. Left edge of zone (F) should be 130 mm (5 in.) left of lamp location marked (D).
8. To adjust headlights, see Adjusting Headlights in this section.



LV3019 -UN-09JUN99



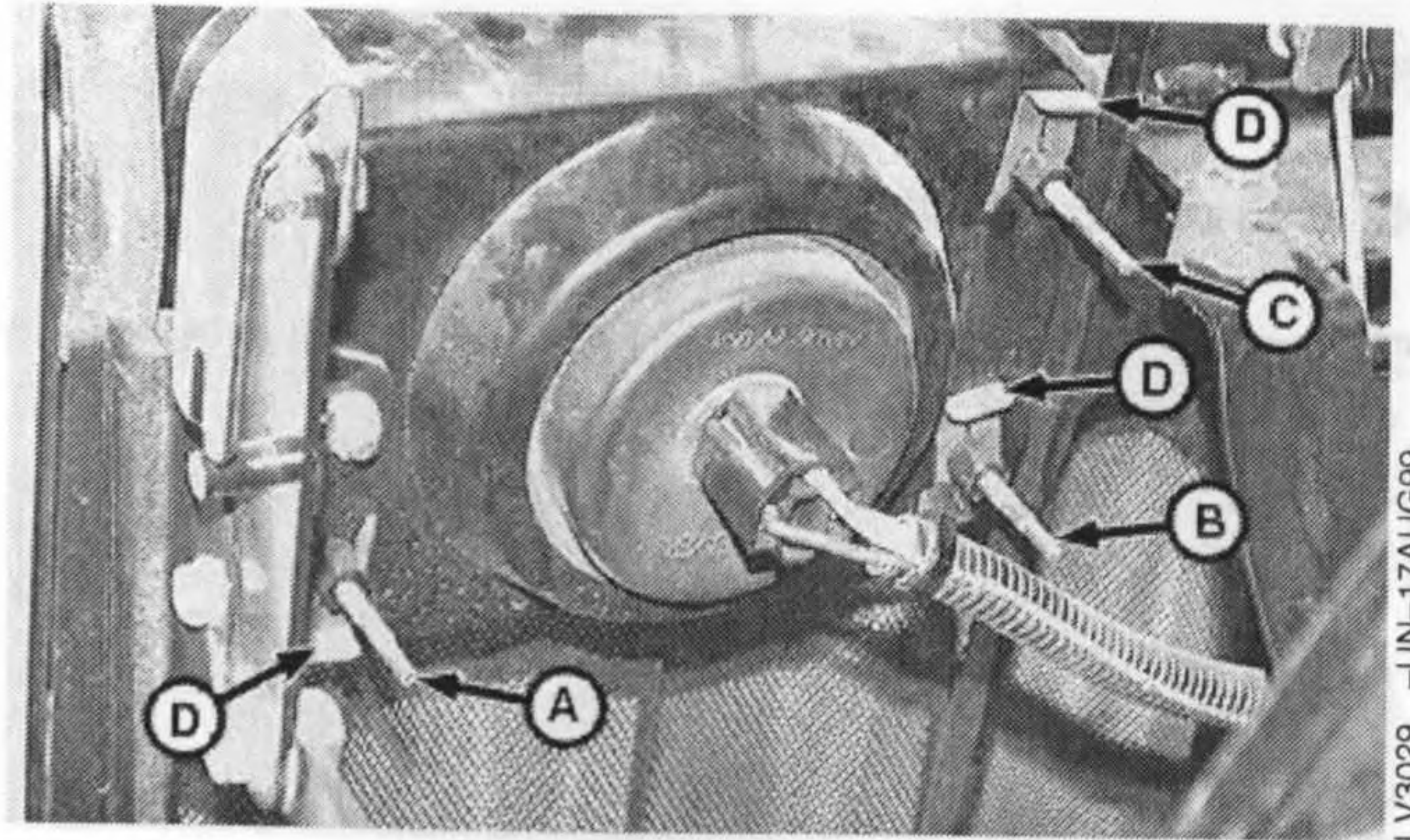
LV3020 -UN-10JUN99

AG,OUO1032,1416 -19-28MAY99-1/1

Adjusting Headlights

1. Open the hood.
2. Turn screws (A and B) counterclockwise to lower beam or clockwise to raise beam.
3. To adjust beam in toward center of tractor, turn screw (A) counterclockwise and screws (B and C) clockwise an equal number of turns on each screw.
4. To adjust beam out from center of tractor, turn screws (B and C) counterclockwise and screw (A) clockwise an equal number of turns on each screw.

NOTE: Clips (D) need not be removed for adjustment.



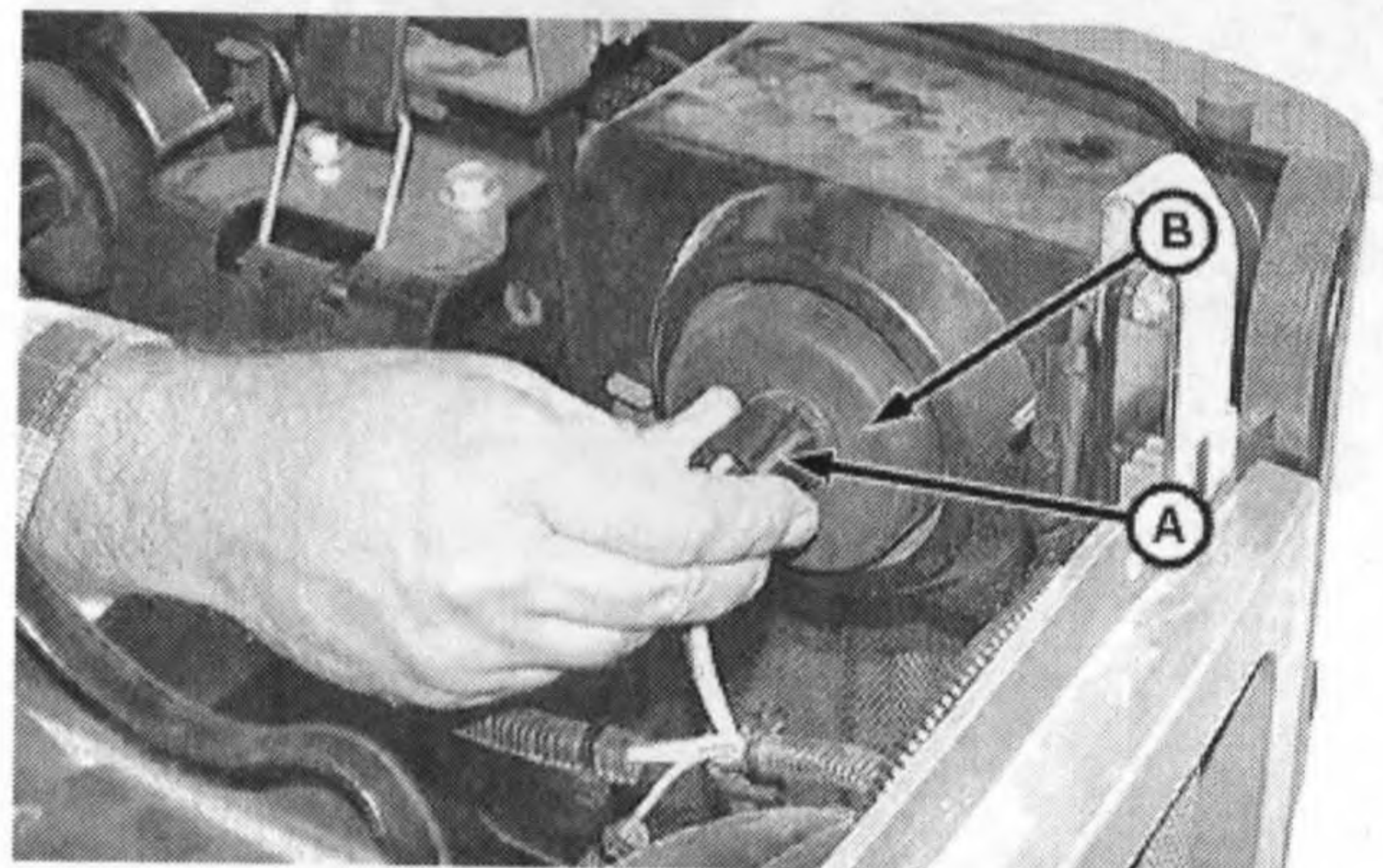
A—Headlight Mounting Screw
B—Headlight Mounting Screw
C—Headlight Mounting Screw
D—Clips

LV,5400NSV,A13A -19-10AUG99-1/1

Replace Headlight Bulb

1. Remove headlight connector (A).
2. Remove dust boot (B).

A—Headlight Connector
B—Dust Boot

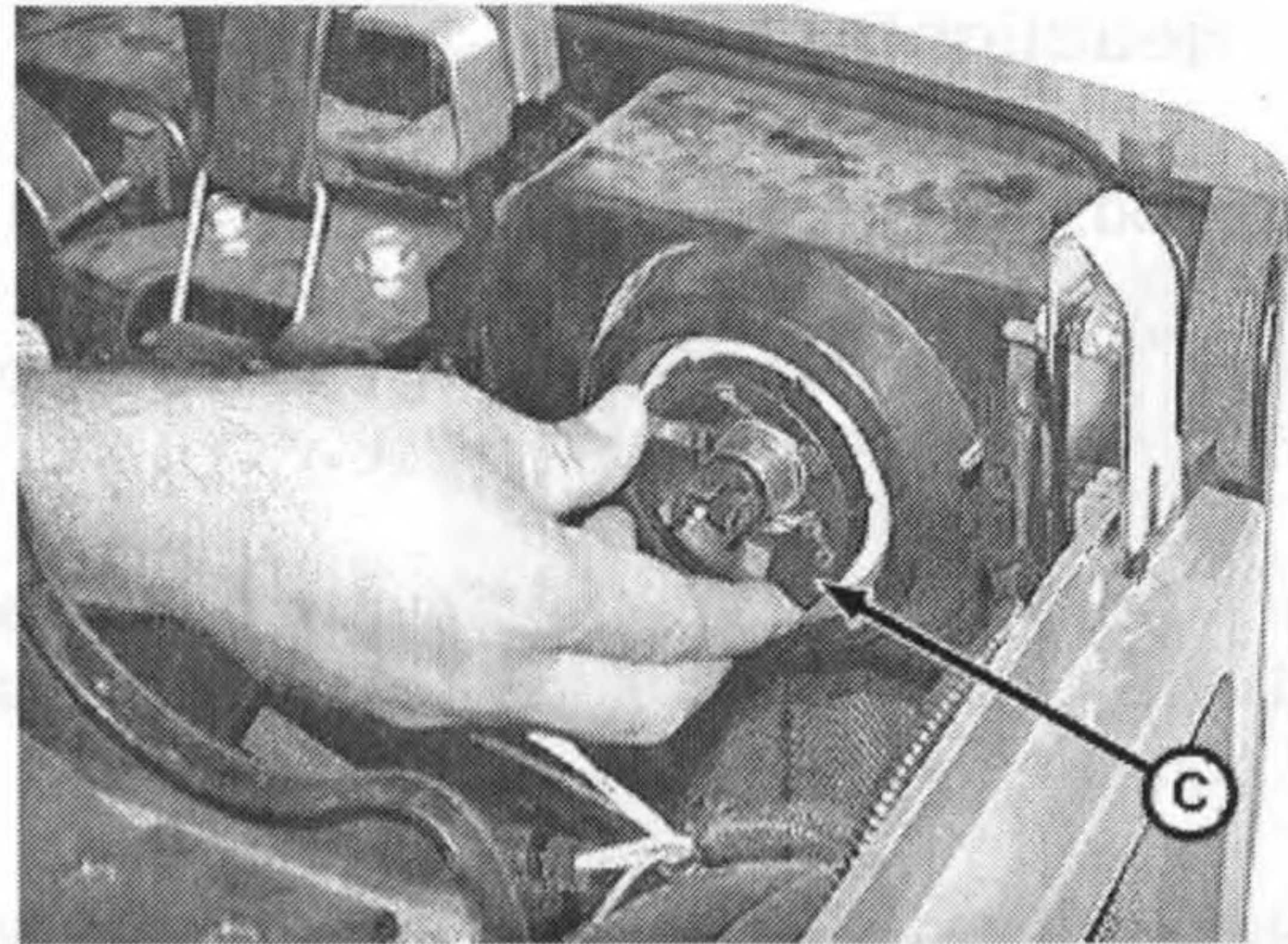


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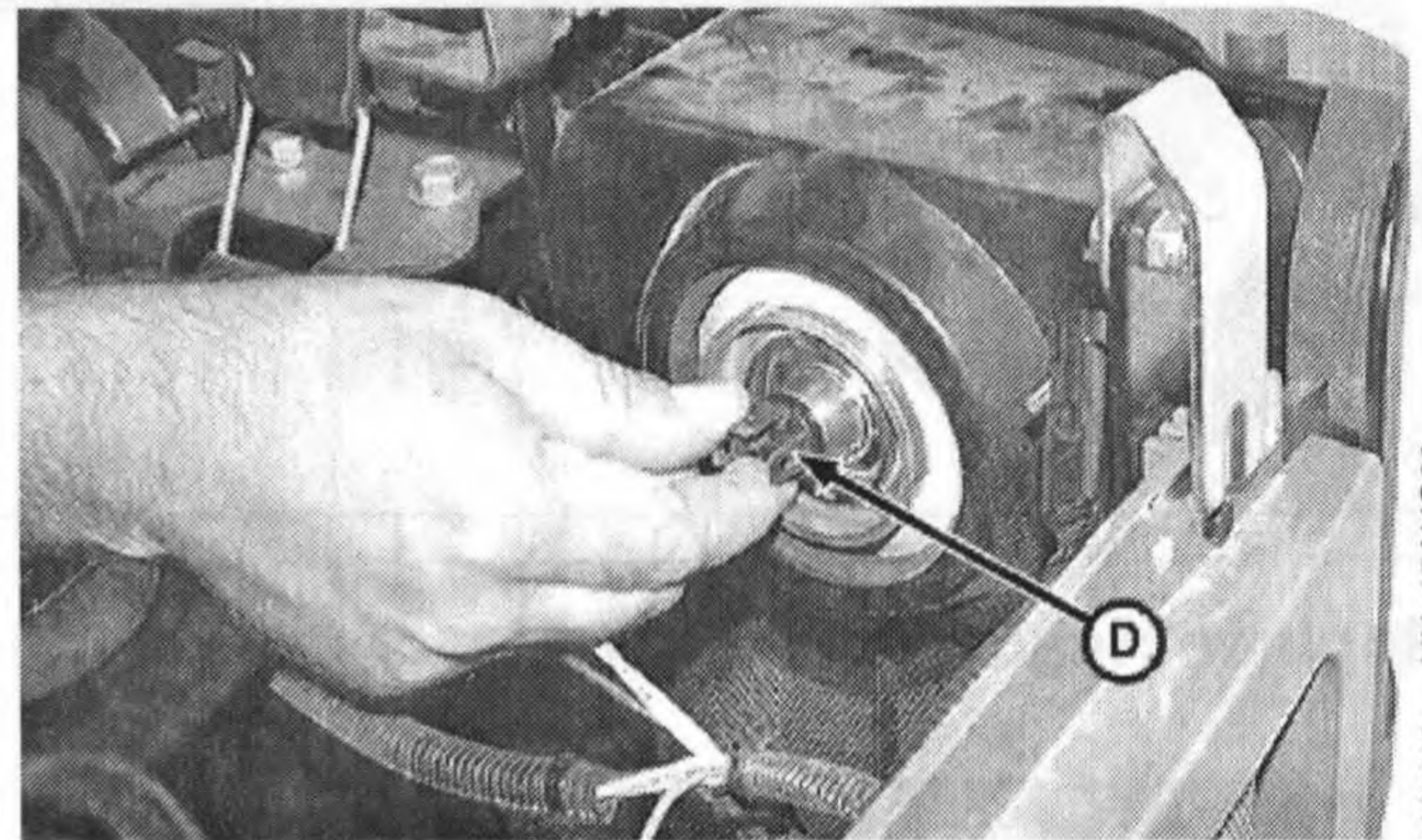
LV,5400NSV,A14A -19-10AUG99-1/2

3. Twist collar (C).
4. Remove bulb (D).
5. Install bulb, collar, seal and connector in reverse order.

C—Collar
D—Bulb



LV3031 -JUN-17AUG99



LV3032 -JUN-17AUG99

LV,5400NSV,A14A -19-10AUG99-2/2

Replace Warning Light Bulb—Cab

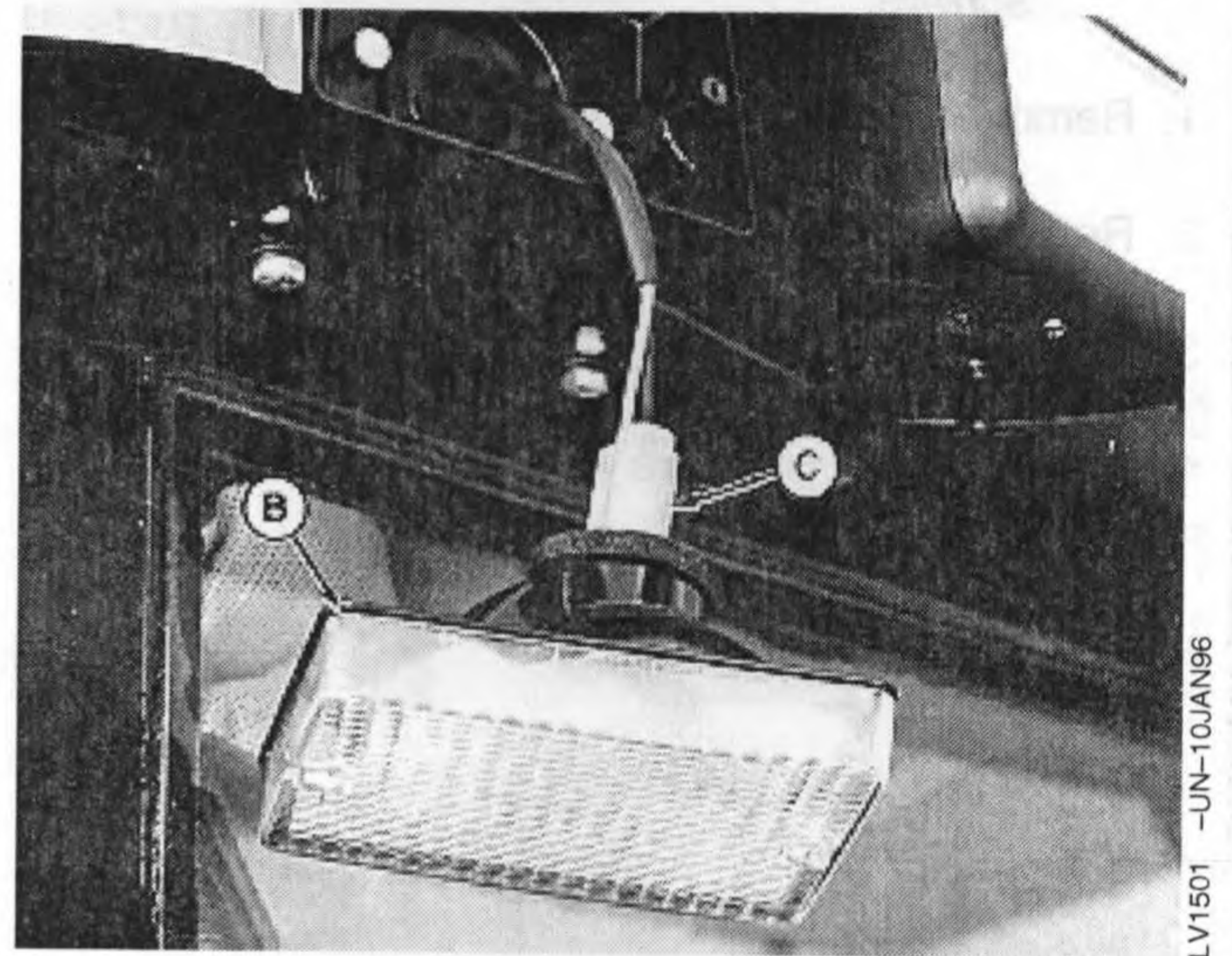
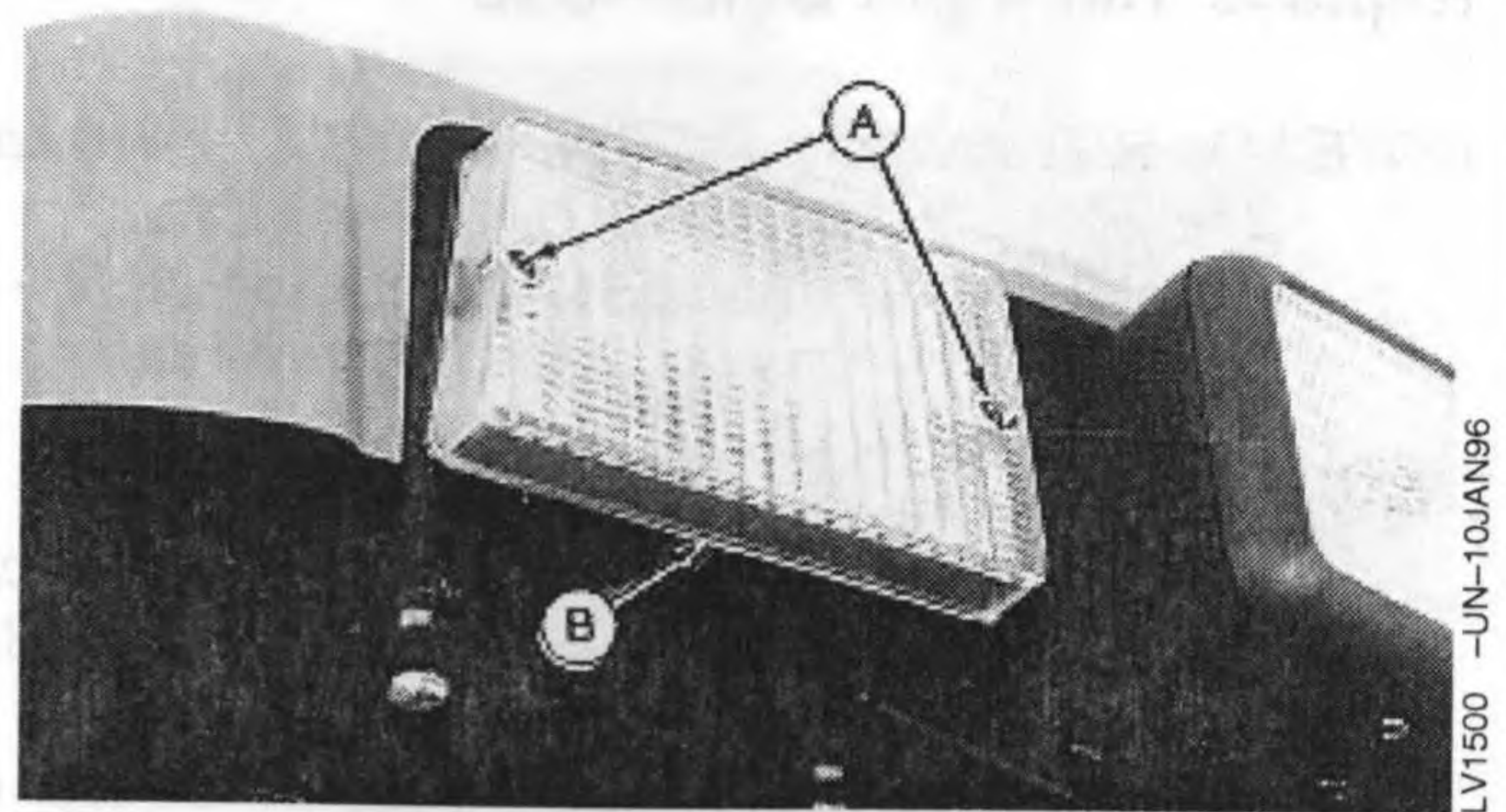
NOTE: Bulb replacement procedures for front and rear warning lights are the same. Front right-hand warning light shown.

1. Remove screws (A) securing warning light to housing.
2. Remove warning light (B) from housing.
3. Turn and remove bulb retainer (C) from back of light (B).
4. Push and twist to release bulb from socket.
5. Reverse this procedure to reassemble warning light.

A—Warning Light Mounting Screw

B—Warning Light

C—Bulb Retainer



LV,SEIP,TTA3 -19-28MAY99-1/1

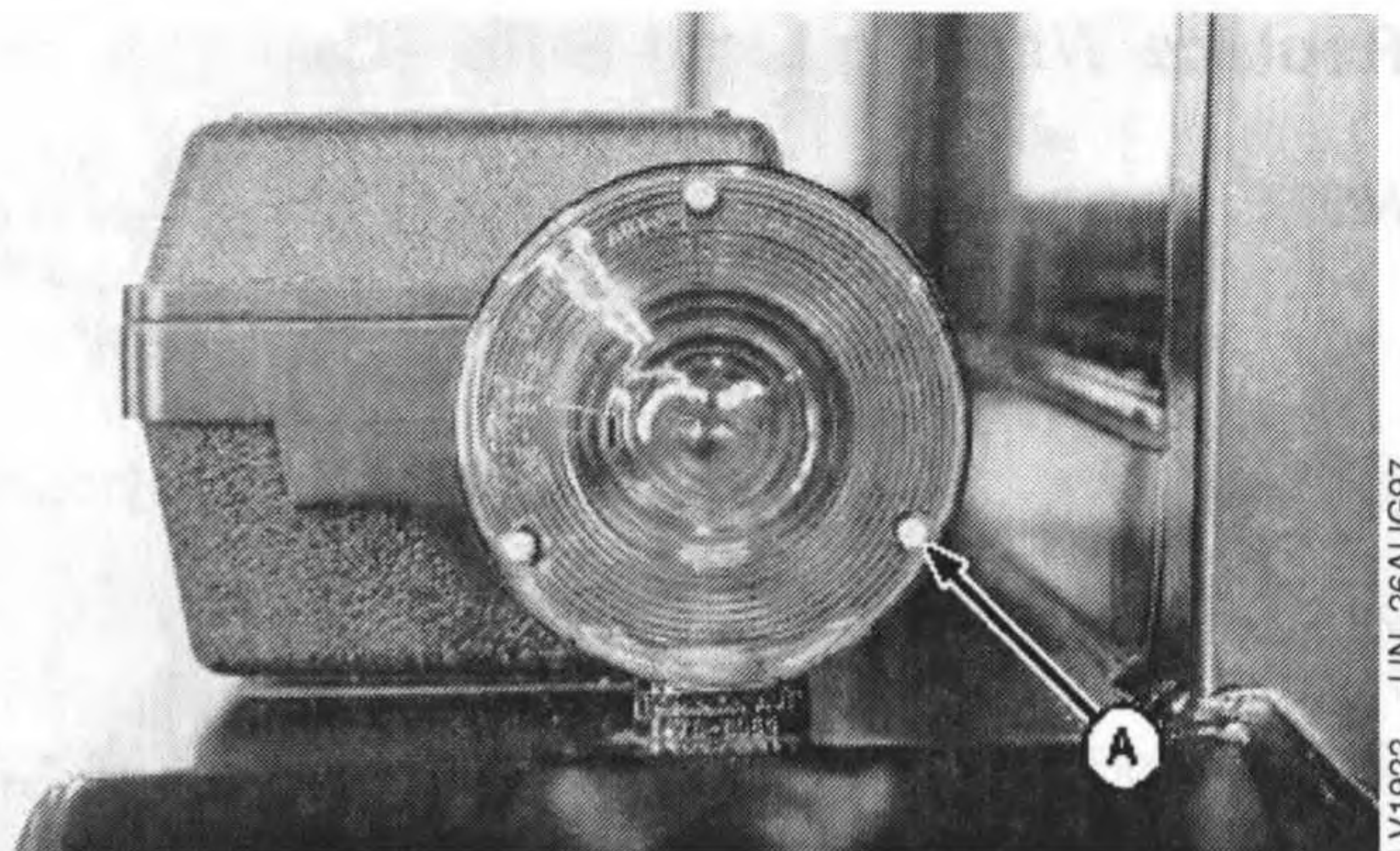
Replace Tail Light Bulb—Cab

NOTE: On 5210 cab tractors (S.N. —120630), 5310 cab tractors (S.N. —131046), 5410 cab tractors (S.N. —141126), and 5510 cab tractors (S.N. —150807) use round tail lights with three cap screws.

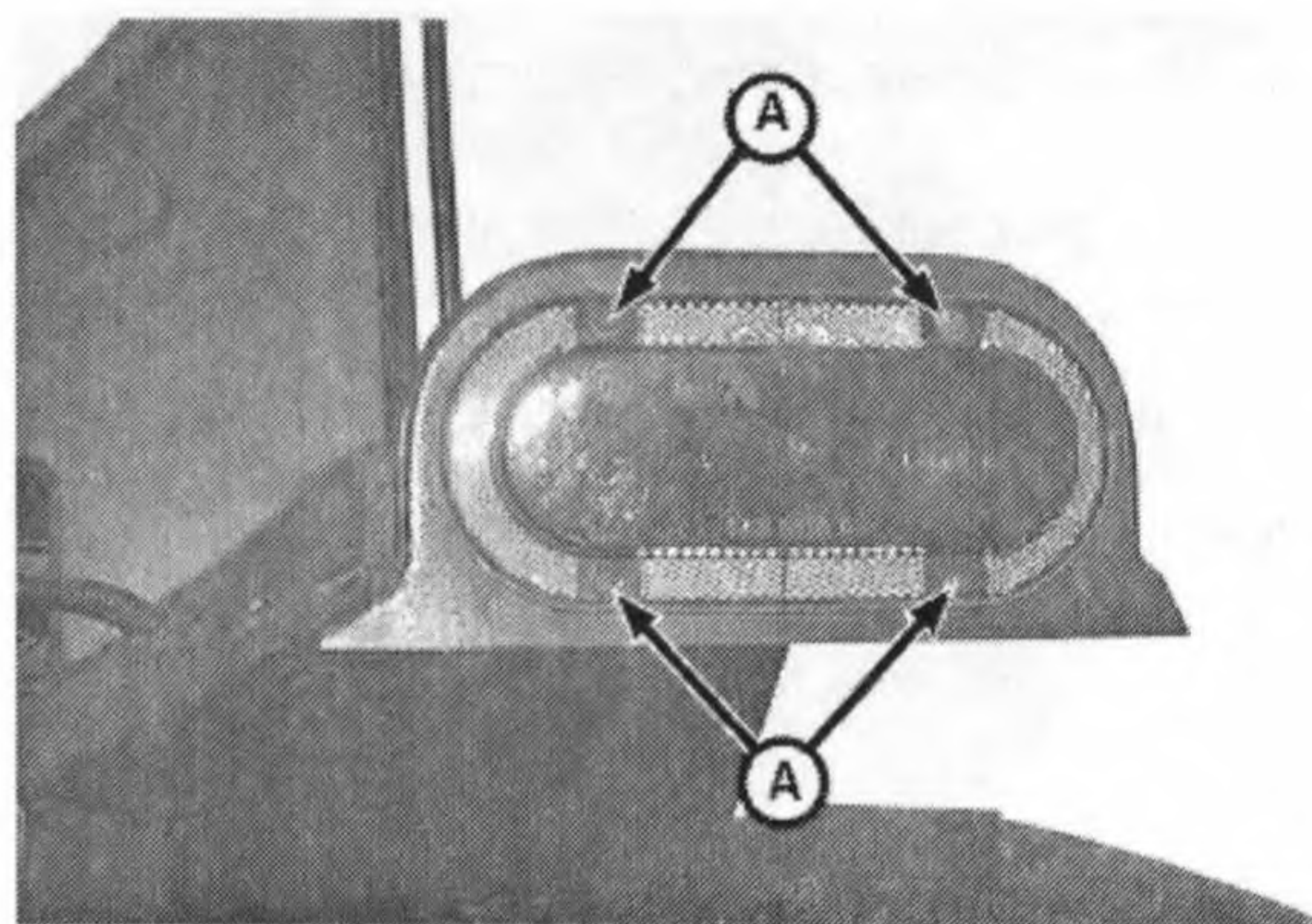
On 5210 cab tractors (S.N. 120631—), 5310 cab tractors (S.N. 131047—), 5410 cab tractors (S.N. 141127—), and 5510 cab tractors (S.N. 150808—) use rectangular tail lights with four cap screws.

1. Remove cap screws (A).
2. Remove tail light lens.
3. Push and twist to release bulb from socket.
4. Reverse this procedure to reassemble tail light.

A—Tail Light Cap Screws



LV1922 -UN-26AUG97



LV3027 -UN-17AUG99

LV.5010S,AG -19-10AUG99-1/1

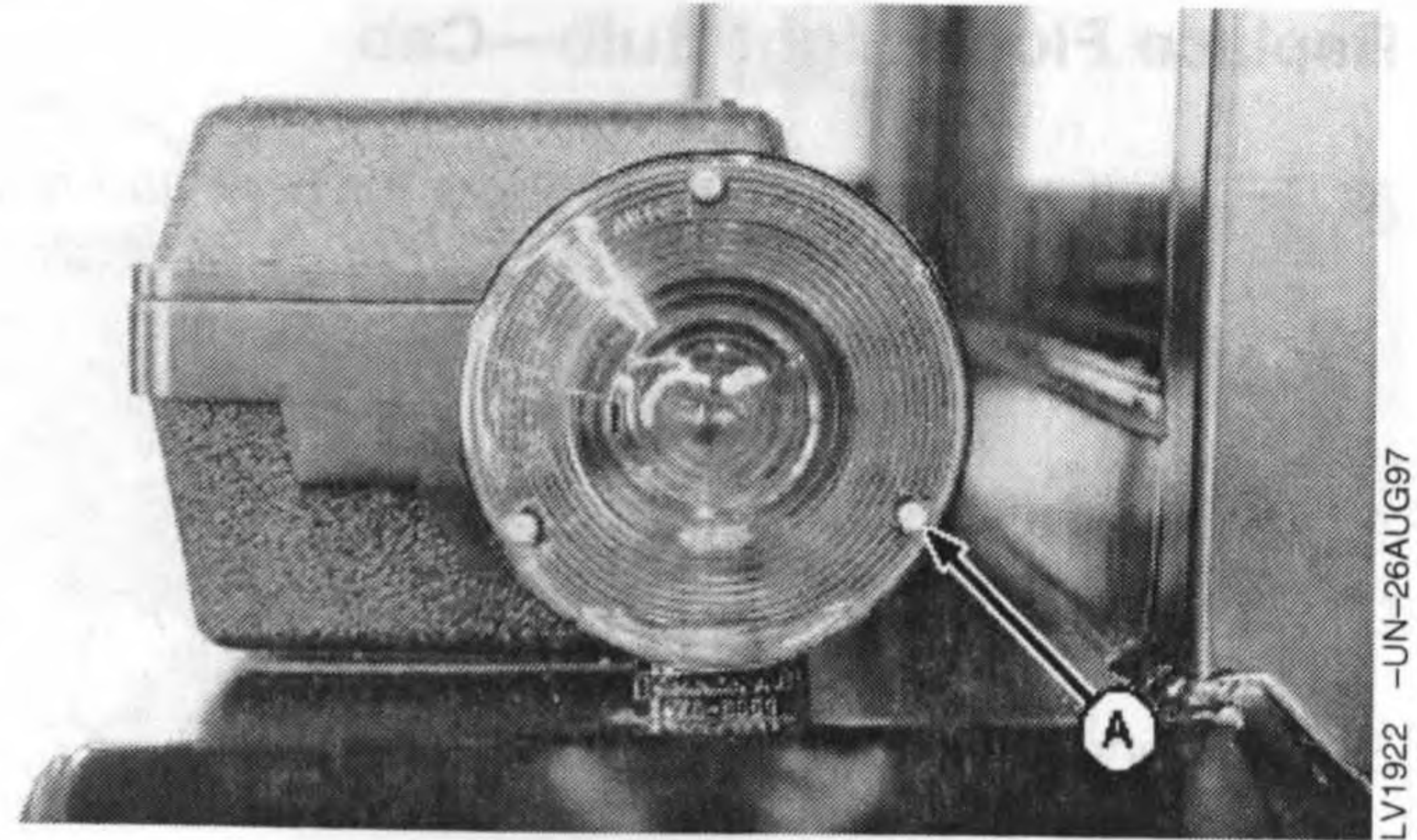
Replace Tail Light Bulb—Open Station

NOTE: On 5210 cab tractors (S.N. —120630), 5310 open station tractors (S.N. —131046), 5410 open station tractors (S.N. —141126), and 5510 open station tractors (S.N. —150807) use round tail lights with three cap screws.

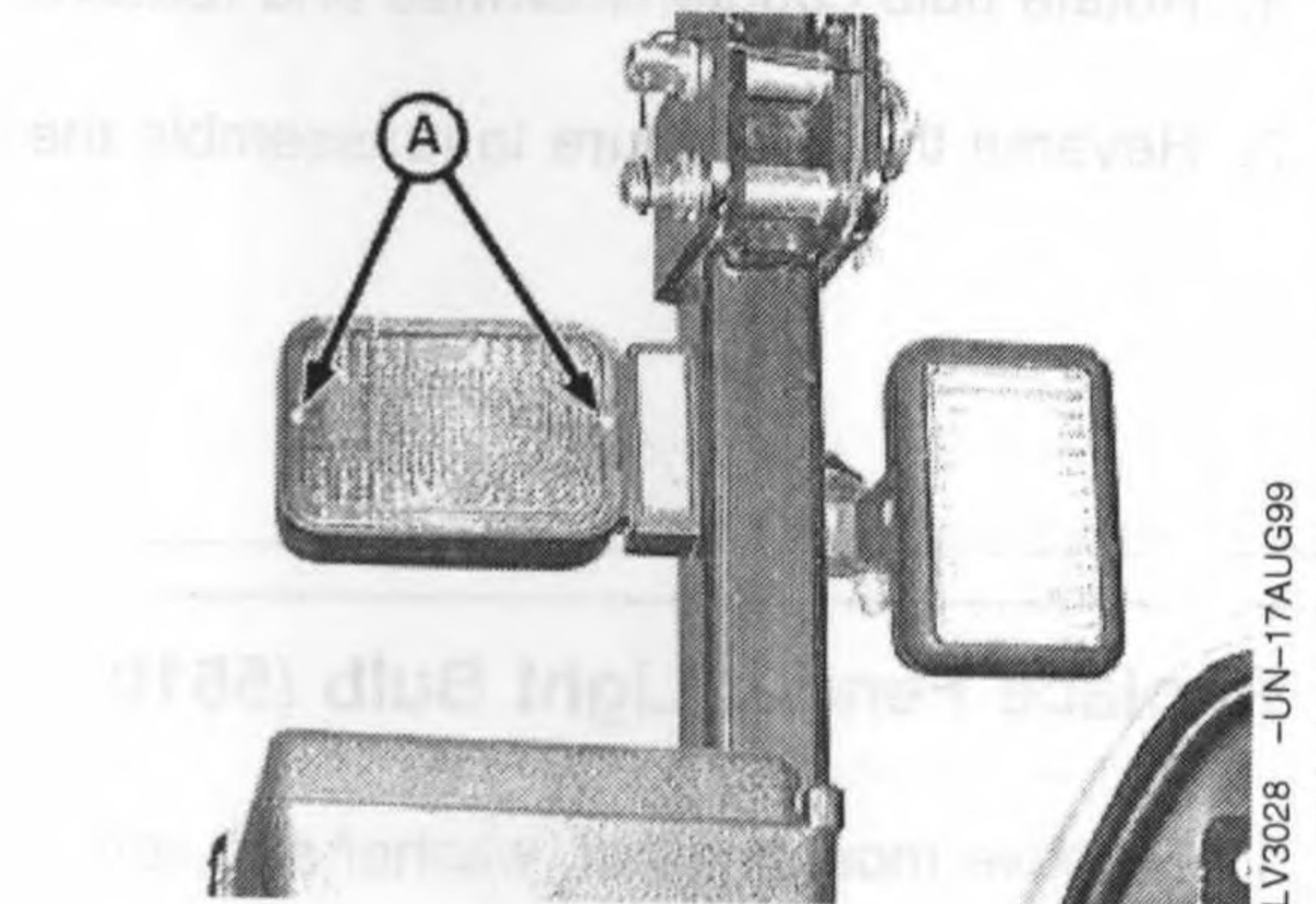
On 5210 open station tractors (S.N. 120631—), 5310 open station tractors (S.N. 131047—), 5410 open station tractors (S.N. 141127—), and 5510 open station tractors (S.N. 150808—) use rectangular tail lights with two cap screws.

1. Remove cap screws (A).
2. Remove tail light lens.
3. Push and twist to release bulb from socket.
4. Reverse this procedure to reassemble tail light.

A—Tail Light Cap Screws (3 used)



LV1922 -UN-26AUG97

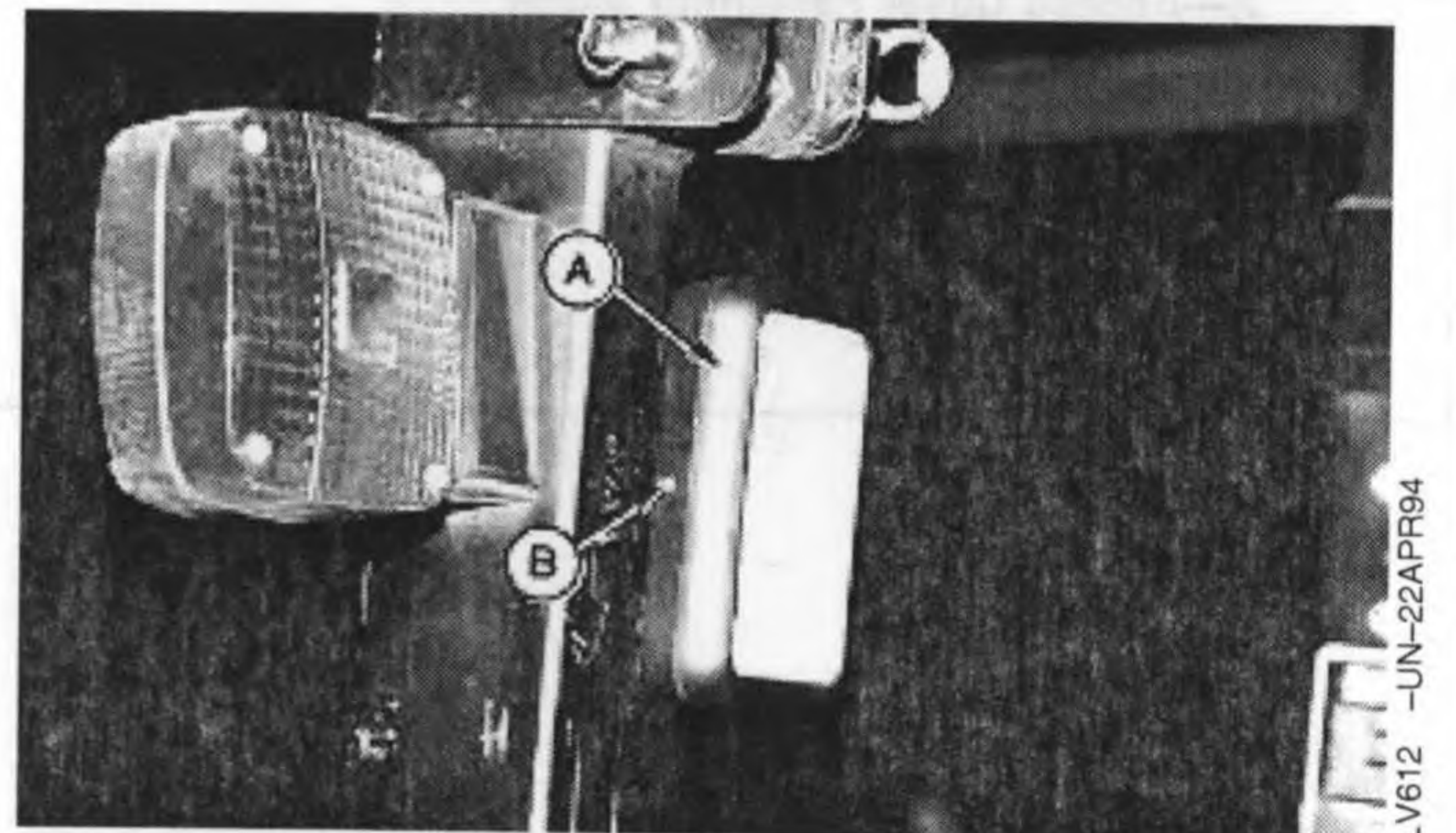


LV3028 -UN-17AUG99

AG,OUO1032,1441 -19-10AUG99-1/1

Replace Flood Light Bulb—Open Station

1. Loosen mounting cap screw and rotate flood light (A) outward to access cover fastening screw. Remove screw (B).
2. Remove light cover and bulb from housing.
3. Disconnect wiring leads from bulb.
4. Rotate bulb counterclockwise and remove.
5. Reverse this procedure to reassemble the flood light.



A—Flood Light
B—Flood Light Cover Screw

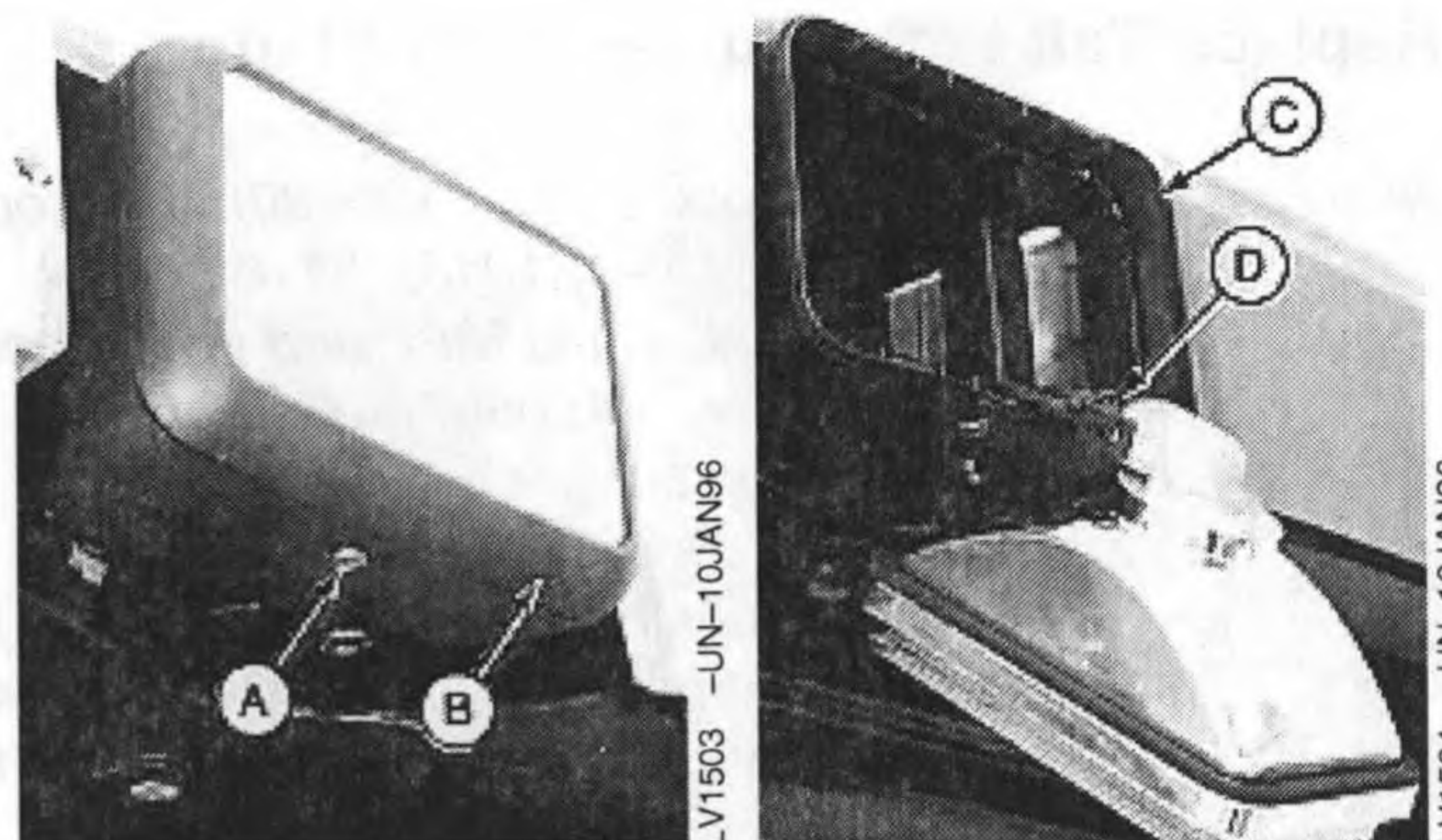
LV612 -UN-22APR94

MX,SEIP,LLA3 -19-28MAY99-1/1

Replace Flood Light Bulb—Cab

NOTE: Bulb replacement procedures for front and rear flood lights are the same. Front right-hand flood light shown.

1. Remove screw (A).
2. Remove cover (B) and bulb from housing (C).
3. Disconnect wiring connector (D) from bulb.
4. Rotate bulb counterclockwise and remove.
5. Reverse this procedure to reassemble the flood light.

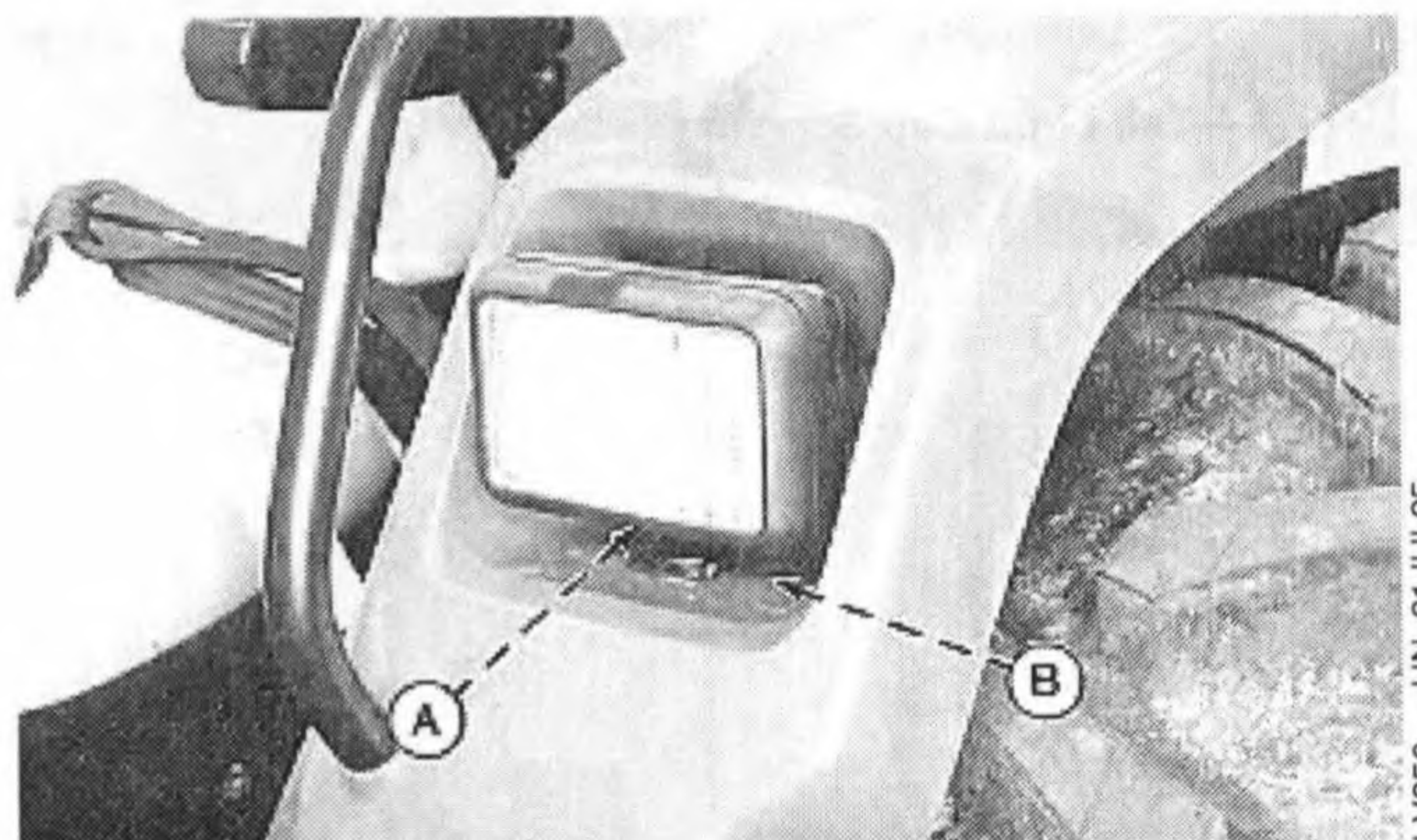


A—Screw
B—Cover
C—Housing
D—Wiring Connector

LV,SEIP,VVA3 -19-28MAY99-1/1

Replace Fender Light Bulb (5510)

1. Remove mounting nut, washer and spring washer (B).
2. Rotate fender light outward to access cover fastening screw (A). Remove screw.
3. Remove light cover and lens from housing.
4. Rotate bulb counterclockwise and remove.
5. Reverse this procedure to reassemble the fender light.



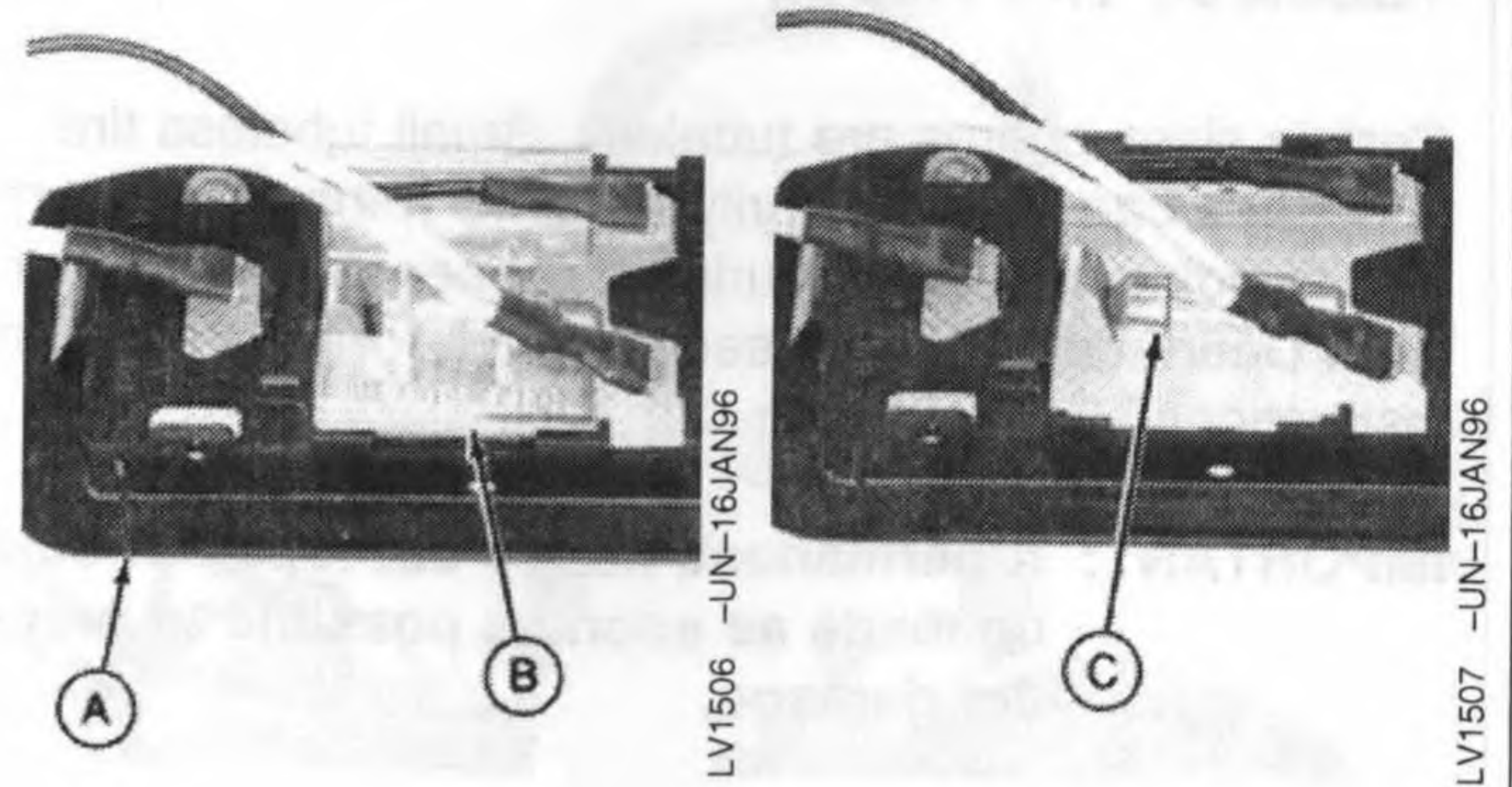
A—Access Cover Fastening Screw

LV,5010S,AH1 -19-28MAY99-1/1

Replace Dome Light Bulb (Cab)

1. Pull on dome light housing (A) to remove from headliner.
2. Remove cover (B).
3. Replace bulb (C).
4. Reverse this procedure to reassemble dome light.

A—Dome Light Housing
B—Dome Light Cover
C—Dome Light Bulb



LV,SEIP,WWA3 -19-28MAY99-1/1

Checking Tires

1. Check tires daily for damage or noticeably low pressure.
2. Have any cuts or breaks repaired as soon as possible.
3. Protect tires from exposure to sunlight, petroleum products and chemicals.
4. Drive carefully. Try to avoid rocks and sharp objects.

IMPORTANT: Minimum pressures may be used only for light loads and only if tractor has no added weight. If you install ballast or mounted implements, or if you pull heavy loads, increase pressure.

5. At least every 100 hours of operation, check tires with an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations. If tires contain liquid ballast, use a special air-water gauge and measure with valve stem at bottom.

Refer to Tire Inflation Pressure Chart in Wheels, Tires and Treads section.

Tubeless Tire Repair

Certain sizes of tires are tubeless. Small tubeless tire punctures can be temporarily repaired without dismounting tire, avoiding down time during busy season. (See your John Deere dealer or tire service store for repair kits and instructions.)

IMPORTANT: A permanent, inside-out repair should be made as soon as possible to prevent tire damage.

MX,SEIP,NN -19-18MAR92-1/1

Keep ROPS Installed Properly (Open Station)



CAUTION: Make certain all parts are installed correctly if roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, as in an overturn incident, or is in anyway altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused. Any alteration to the ROPS must be approved by the manufacturer.

When installation of equipment on a machine necessitates loosening or removing Roll-Over Protective Structure (ROPS) (A), mounting bolts (B) should be tightened to specification.

Specification

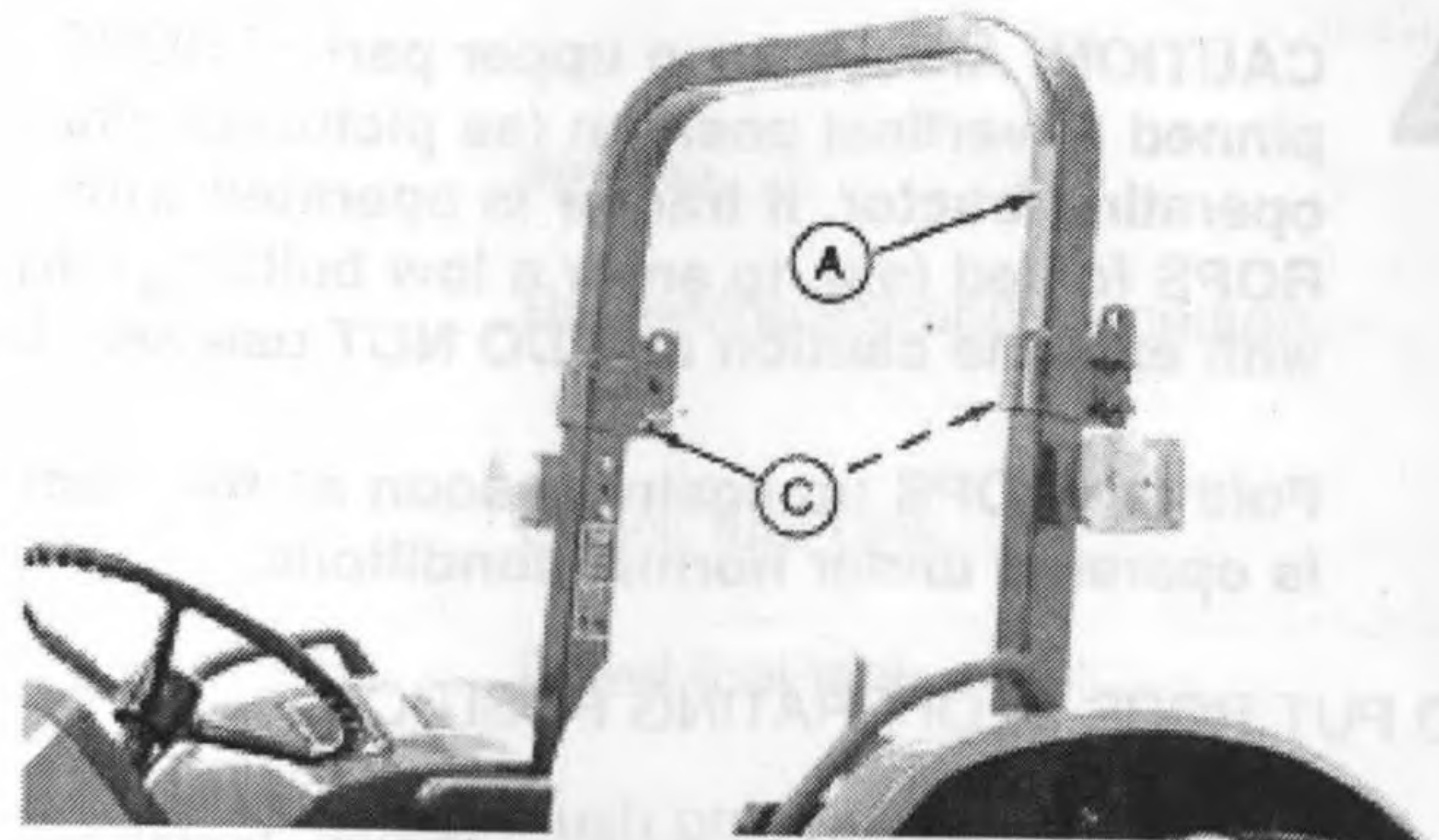
ROPS Mounting Bolts Torque..... 335 N•m (250 lb-ft)

Inspect ROPS mounting hardware every 250 hours for proper torque or replacement.

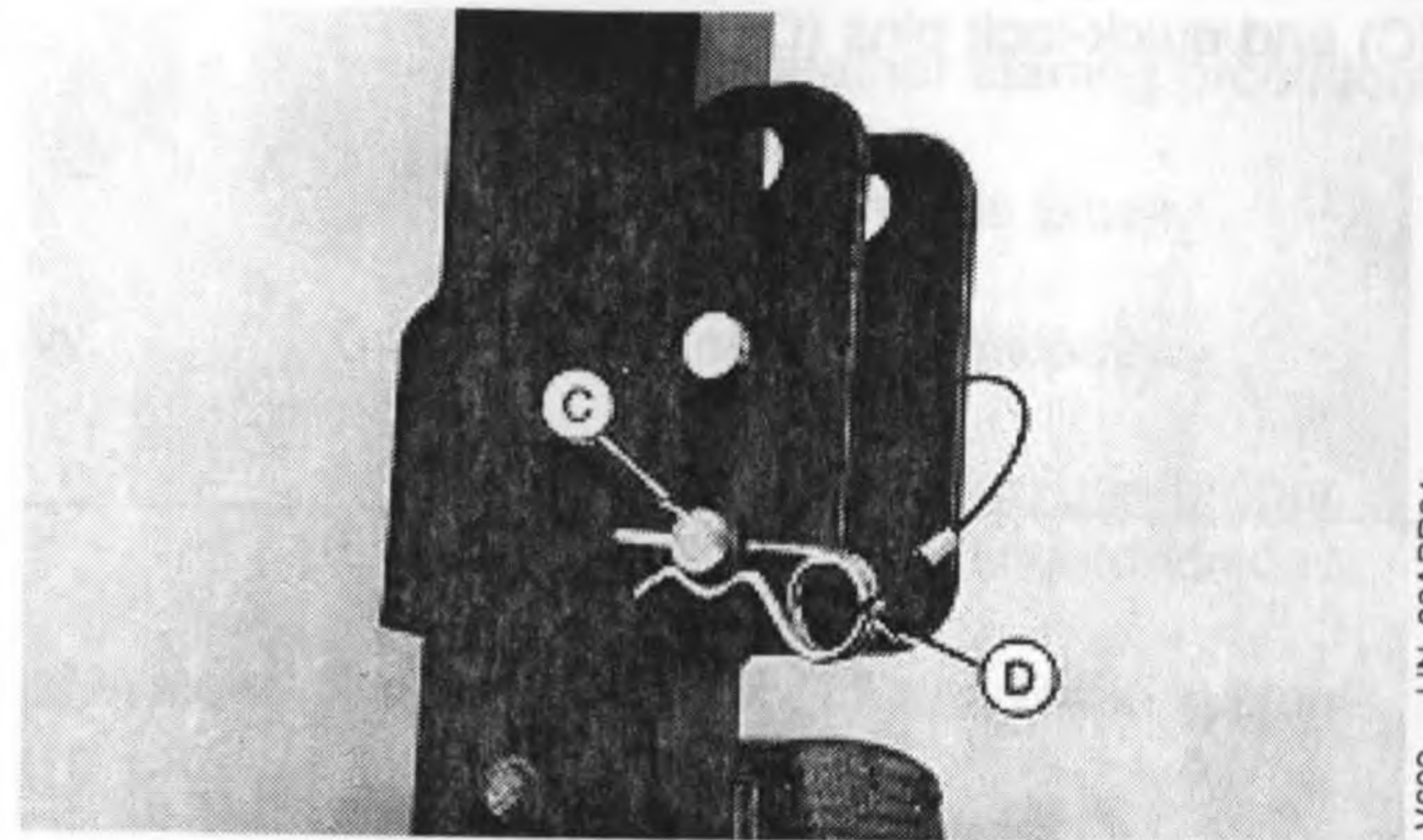
TO LOWER ROPS CROSSBAR (A):

1. Remove quick-lock pins (D) and headed pins (C).
2. Lower crossbar (A) of ROPS onto stops.
3. Reinstall pins (C and D) into holes in ROPS to lock crossbar down.

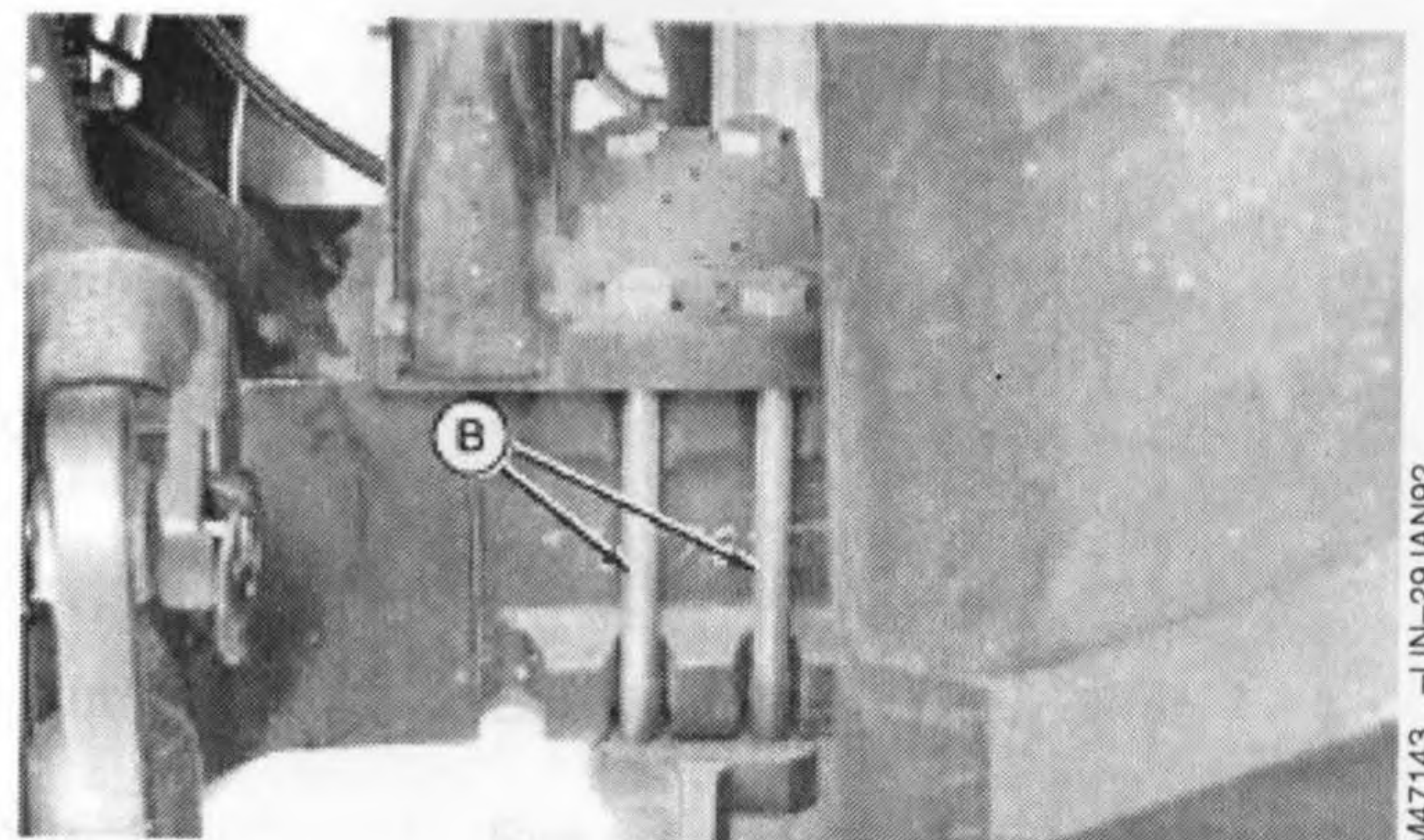
A—ROPS Crossbar
B—Mounting Bolts (8 used)
C—Headed Pins
D—Quick-Lock Pin



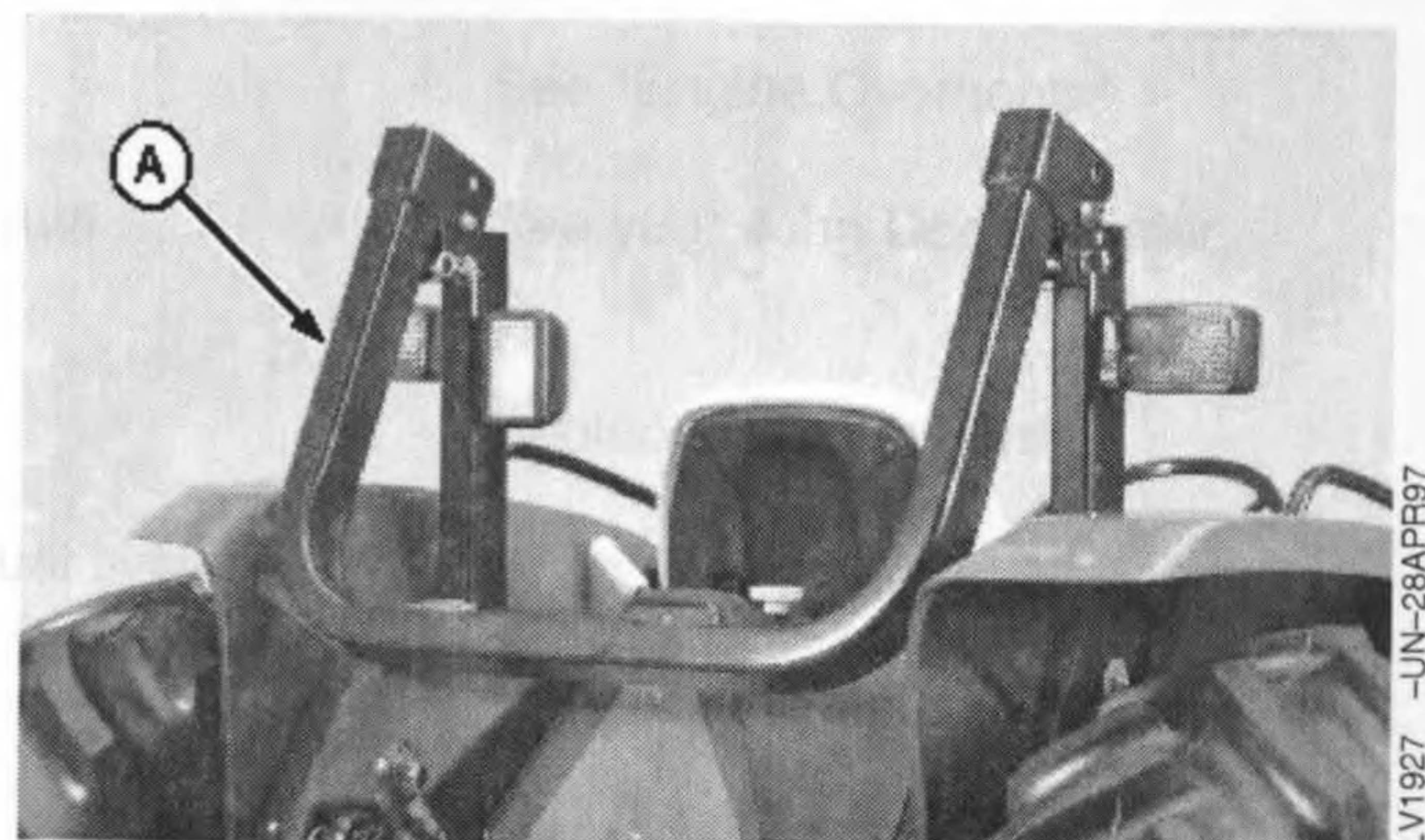
M47142 -UN-29JAN92



LV603 -UN-22APR94



M47143 -UN-29JAN92



LV1927 -UN-28APR97



CAUTION: Always keep upper part of ROPS pinned in vertical position (as pictured) when operating tractor. If tractor is operated with ROPS folded (e.g. to enter a low building) drive with extreme caution and **DO NOT** use seat belt.

Fold the ROPS up again as soon as the tractor is operated under normal conditions.

TO PUT ROPS IN OPERATING POSITION:

Lift crossbar (A) of ROPS to position shown. Install pins (C) and quick-lock pins (D).

LV,5010S,AI -19-03JUN97-2/2

Troubleshooting

Engine Troubleshooting

Symptom	Problem	Solution
Engine hard to start or will not start	Improper starting procedure.	Reviewing starting procedure.
	No fuel.	Check fuel tank.
	Air in fuel tank.	Bleed fuel tank.
	Hand primer left raised.	Push primer down.
	Cold weather.	Use cold weather starting procedure.
	Slow starter speed.	See "Starter Cranks Slowly".
	Crankcase oil too heavy.	Use oil of proper viscosity.
	Improper type of fuel.	Consult fuel supplier; use proper type fuel for operating conditions.
	Water, dirt, or air in fuel system.	Drain, flush, fill and bleed system.
	Clogged fuel filter.	Replace filter element.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Injection pump shut-off not reset.	Turn key switch to OFF then to ON.
	Fuel shut-off valve closed.	Open fuel shut-off valve.
Engine knocks	Insufficient oil.	Add oil.
	Injection pump out of time.	See your John Deere dealer.
	Low coolant temperature.	See your John Deere dealer.
	Engine overheating.	See "Engine Overheats".
Engine runs irregularly or stalls frequently	Low coolant temperature.	See your John Deere dealer.
	Clogged fuel filter.	Replace filter element.
	Water, dirt, or air in fuel system.	Drain, flush, fill, and bleed system.

Troubleshooting

Symptom	Problem	Solution
Below normal engine temperature	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Improper type of fuel.	Use proper fuel.
Lack of power	Defective temperature gauge or sender.	Check gauge, sender, and conditions.
	Engine overloaded.	Reduce load or shift to lower gear.
	Low fast idle speed.	See your John Deere dealer.
	Intake air restriction.	Service air cleaner.
	Clogged fuel filter.	Replace filter element.
	Improper type of fuel.	Use proper fuel.
	Overheated engine.	See "Engine Overheats".
	Below normal engine temperature.	See your John Deere dealer.
	Improper valve clearance.	See your John Deere dealer.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Injection pump out of time.	See your John Deere dealer.
	Turbocharger not functioning (5310 and 5510).	See your John Deere dealer.
	Leaking exhaust manifold gasket (5310 and 5510).	See your John Deere dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Restricted fuel line.	See your John Deere dealer.
	Restricted return line.	See your John Deere dealer.
Low oil pressure	Improper ballast.	Adjust ballast to load.
	Low oil level.	Add oil.
	Improper type of oil.	Drain, fill crankcase with oil of proper viscosity and quality.

Continued on next page

LV,5010T,A -19-02JUN99-2/4

Symptom	Problem	Solution
High oil consumption	Crankcase oil too light.	Use proper viscosity oil.
	Oil leaks.	Check for leaks in lines, around gaskets and drain plugs.
	Restricted crankcase vent tube.	Clean vent tube.
	Defective turbocharger (5310 and 5510).	See your John Deere dealer.
Engine emits white smoke	Improper type fuel.	Use proper fuel.
	Low engine temperature.	Warm up engine to normal operating temperature.
	Defective thermostat.	See your John Deere dealer.
	Defective injection nozzles.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.
	Cold start advance or light load advance not functioning.	See your John Deere dealer.
Engine emits black or gray exhaust smoke	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a low gear.
	Injection nozzles dirty.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.
	Turbocharger not functioning (5310 and 5510).	See your John Deere dealer.
Engine overheats	Dirty radiator core, or grille screens.	Remove all trash.
	Engine overloaded.	Shift to lower gear or reduce load.
	Low engine oil level.	Check oil level. Add oil as required.
	Low coolant level.	Fill radiator to proper level, check radiator, coolant recovery tank, and hoses for loose connection or leaks.

Troubleshooting

Symptom	Problem	Solution
High fuel consumption.	Faulty radiator cap.	Replace cap.
	Loose or defective fan belt(s).	Adjust belt tension(s).
	Cooling system needs flushing.	Flush cooling system.
	Defective thermostat.	See your John Deere dealer.
	Defective temperature gauge or sender.	See your John Deere dealer.
	Incorrect grade of fuel.	Use proper fuel.
	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a lower gear.
	Improper valve clearance.	See your John Deere dealer.
	Injection nozzles dirty.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Low engine temperature.	See your John Deere dealer.
	Excessive ballast.	Adjust ballast to load.
	Defective turbocharger (5310 and 5510).	See your John Deere dealer.
	Restricted air intake system.	Check system.
	Plugged crankcase vent tube.	Clean vent tube.

LV,5010T,A -19-02JUN99-4/4

Transmission Troubleshooting

Symptom	Problem	Solution
Transmission oil overheats	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.
	Internal hydraulic leak.	See your John Deere dealer.
	Hitch feedback linkage improperly adjusted.	Reset linkage. See your John Deere dealer.
	Hydraulic motor not plumbed correctly.	See your John Deere dealer.
Low transmission pressure.	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.

MX,TSIP,BA2 -19-24JUL95-1/1

Hydraulic System Troubleshooting

Symptom	Problem	Solution
Entire hydraulic system fails to function	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic filter.	Replace filter.
	Clogged transmission-hydraulic pickup screen.	Clean pickup screen.
	High-pressure internal leak.	See your John Deere dealer.
Hydraulic oil overheats	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.
	Internal hydraulic leak.	See your John Deere dealer.
	Hitch feedback linkage improperly adjusted.	Reset linkage. See your John Deere dealer.
	Hydraulic motor not plumbed correctly.	See your John Deere dealer.

LV,5010T,B -19-03JUN97-1/1

Brakes Troubleshooting

Symptom	Problem	Solution
No solid pedal feel	Air in system.	See your John Deere dealer.
Pedal settles	Rear brake piston seal leaking.	See your John Deere dealer.
Excessive pedal travel	Air in system.	See your John Deere dealer.
Brakes drag during transport	Brakes out of adjustment.	See your John Deere dealer.

MX,TSIP,DA1 -19-24JUL95-1/1

Rockshaft and Quick-Coupler 3-Point Hitch Troubleshooting

Symptom	Problem	Solution
Insufficient transport clearance	Center link too long.	Adjust center link.
	Lift links too long.	Adjust lift links.
	Implement not level.	Level implement.
	Implement not properly adjusted.	See implement operator's manual.
	Front of center link in upper holes.	Move center link to lower holes.
	Sway chains adjusted too short.	Lengthen sway chains.
Hitch drops slowly	Rockshaft rate-of-drop control not properly set.	Adjust rate-of-drop knob.
Hitch fails to lift or lifts slowly	Excessive load on hitch.	Reduce load.
	Low oil level.	Fill system with proper oil.
	Hydraulic oil too cold.	Allow oil to warm.
	Transmission-hydraulic oil filter clogged.	Replace filter.
	Transmission-hydraulic pickup screen clogged.	Clean or replace pickup screen.
Implement will not operate at desired depth	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.
	Improper setting of limit stop.	Reset position limit.
	Improper setting of draft lever.	See Rockshaft and 3-Point Hitch section.
Insufficient or no hitch response to draft load	Front attachment of center link in upper holes.	Move center link attachment to lower bracket holes.
	Draft control lever in "Off" position.	Move lever rearward.
	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.

Troubleshooting

Symptom	Problem	Solution
Hitch too responsive	Rate-of-drop too slow.	Adjust rate-of-drop valve.
	Front attachment on center link in lower bracket holes.	Move center link attachment to upper bracket holes.
Hitch drops too fast	Improper draft sensing adjustment.	Move lever forward.
	Rate-of-drop set too fast.	Adjust rate-of-drop.
Rockshaft control levers "drift". Levers too loose.	Friction disks are loose.	Adjust rockshaft control lever friction. See procedures in "Rockshaft and 3-Point Hitch" section or see your John Deere dealer.

LV,5010T,C -19-03JUN97-2/2

Remote Hydraulic Cylinders Troubleshooting

Symptom	Problem	Solution
Direction of remote cylinder travel is reversed	Improper hose connections.	Reverse hose connections
Hoses will not couple	Improper hose male tips.	Replace tip with ISO standard tips.
Remote cylinder will not lift load	Excessive load.	Reduce load.
	Hoses not completely installed.	Attach hoses correctly.
	Incorrect remote cylinder size.	Use correct size cylinder.
Direction of travel reverses on #2 SCV.	SCV lever moved to regenerate position.	Reverse hose couplings.

MX,TSIP,FA3 -19-02JUN99-1/1

Electrical System Troubleshooting

Symptom	Problem	Solution
Battery will not charge	Loose or corroded connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Loose or defective alternator/fan belt.	Adjust belt tension or replace belt.
Charging system indicator glows with engine running	Low engine speed.	Increase speed.
	Defective battery.	Check electrolyte level and specific gravity.
	Defective alternator.	See your John Deere dealer.
	Slipping alternator/fan belt.	Adjust belt tension.
Starter inoperative	Gear shift lever or Forward-Neutral-Reverse lever (PowrReverser™ transmission) in gear.	Move lever to neutral.
	Gear shift lever not in Park.	Move lever to park.
	PTO lever in engaged position.	Move PTO lever to disengaged position.
	Low battery output.	See your John Deere dealer.
	Blown fuse.	Replace fuse.
Starter cranks slowly	Low battery output.	Check electrolyte level and specific gravity.
	Crankcase oil too heavy.	Use proper viscosity oil.
	Loose or corroded connections.	Clean and tighten loose connections.
Light system does not function; rest of electrical system functions	Blown fuse.	Replace fuse.

Troubleshooting

Symptom	Problem	Solution
Entire electrical system does not function	Faulty battery connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Blown fuse.	Replace fuse.
Relay(s) sticking or nonfunctional; repeated failures	Diode to protect circuit from arcing has failed.	See your John Deere dealer.

LV,5010T,E -19-09SEP97-2/2

Heater and A/C System Troubleshooting (Cab)

Symptom	Problem	Solution
All cab electrical switches do not work	Loose, defective or blown fusible link.	See your John Deere dealer.
Blower malfunctioning	Blower does not work.	Check both blower fuses.
Blower operates only in "Purge" position	One of two fuses blown.	Replace fuse.
	Blown blower resistance assembly.	See your John Deere dealer.
Heater does not work	Low coolant level	Check coolant level - add if necessary.
	Faulty thermostat.	See your John Deere dealer.
	Heater control valve not functioning properly.	See your John Deere dealer.
	Heater core or hoses clogged or damaged.	Flush cooling system. Replace heater core or hoses. See your John Deere dealer.
Air conditioning does not work	Compressor belt loose or slipping.	Adjust belt tension. Replace belt if necessary.
	Blown fuse.	Replace fuse.
	Defective switch.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Defective compressor clutch.	See your John Deere dealer.
Drafts	Poor air distribution	Adjust directional air louvers. Set blower switch to medium or low positions.
Inadequate air flow	Clogged air filters.	Clean filters.
	Evaporator core air flow restricted.	Clean evaporator and housing with compressed air.
	Faulty blower fan motors.	See your John Deere dealer.

Troubleshooting

Symptom	Problem	Solution
Water leaking or dripping from evaporator core compartment	Defective blower switch.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Loose hose clamp.	Tighten clamp.
	A/C drip pan dirty.	Clean evaporator pan and outlet with compressed air.
Strange odors inside operator's cab	A/C drain tubes plugged.	Clean drain tubes.
	Dirty air filters.	Clean filters.
	Evaporator condenser pan dirty.	Clean pan and outlet with compressed air.
	Drain tubes plugged.	Clean drain tubes.
Partial frosting and sweating of lines combined with poor cooling	Tobacco smoke and tar on evaporator exterior.	Clean filters.
	Compressor belt slipping.	Adjust compressor belt tension.
	Loss of refrigerant.	Check sight glass for bubbles and system for leaks. See your John Deere dealer.
	Restricted or clogged liquid line.	See your John Deere dealer.
Ice flecks blowing from evaporator	Expansion valve malfunctioning.	See your John Deere dealer.
	Control dial set too low.	Adjust the temperature control to a warmer position.
Failure to cool	Insufficient blower speed.	Increase blower speed.
	Dirty air filters.	Clean filters.
	Debris on front grille and side screens.	Clean grille and screens.
	Lint or dirt on condenser fins.	Blow out condenser fins with compressed air.

Continued on next page

LV.5010T.D -19-02JUN99-2/3

Troubleshooting

Symptom	Problem	Solution
	Refrigerant is lost or extremely low.	See your John Deere dealer.
	Loose compressor drive belt.	Adjust belt tension.
	Compressor clutch not engaging.	See your John Deere dealer.
	Expansion valve not functioning.	See your John Deere dealer.
	Restriction in refrigerant system.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
	Defective temperature control switch.	See your John Deere dealer.
Failure to cool	Outside temperature too low. (Below 70°F) (21°C).	Wait until day gets warmer. If there is a malfunction in system—see your John Deere dealer.
	Condenser is overheating.	Clean condenser screens, cores and fins of condenser and radiator.
	Severe restriction in high side.	See your John Deere dealer.
	Burned out clutch field or faulty field.	See your John Deere dealer.
	Short circuit in control circuit or failure of a switch in circuit.	See your John Deere dealer.
Hissing noise at expansion valve	Loss of refrigerant.	Check sight glass for bubbles and system for leaks.
	Restriction in refrigerant system.	Check for kinks in hoses. Check receiver-dryer for uniformity of temperature. If temperature is not uniform, see your John Deere dealer.

LV,5010T,D -19-02JUN99-3/3

Wipers, Flood Lights, Dome Light and Radio Troubleshooting (Cab)

Symptom	Problem	Solution
All cab electrical switches do not work	Loose, defective or blown fusible link.	See your John Deere dealer.
Window wiper(s) and washer will not run	Blown fuse.	Replace fuse.
	Defective switch(es).	See your John Deere dealer.
	Defective motor(s).	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
Flood lights do not work	Blown fuse.	Replace fuse.
	Defective switch.	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
Dome light does not work	Blown fuse.	Replace fuse.
	Defective bulb or switch.	Replace bulb or see your John Deere dealer.
	Defective door switch(es).	See your John Deere dealer.
	Faulty wiring or loose connections.	See your John Deere dealer.
Radio does not work	Blown fuse.	Replace fuse.

LV,TSIP,IA4 -19-02JUN99-1/1

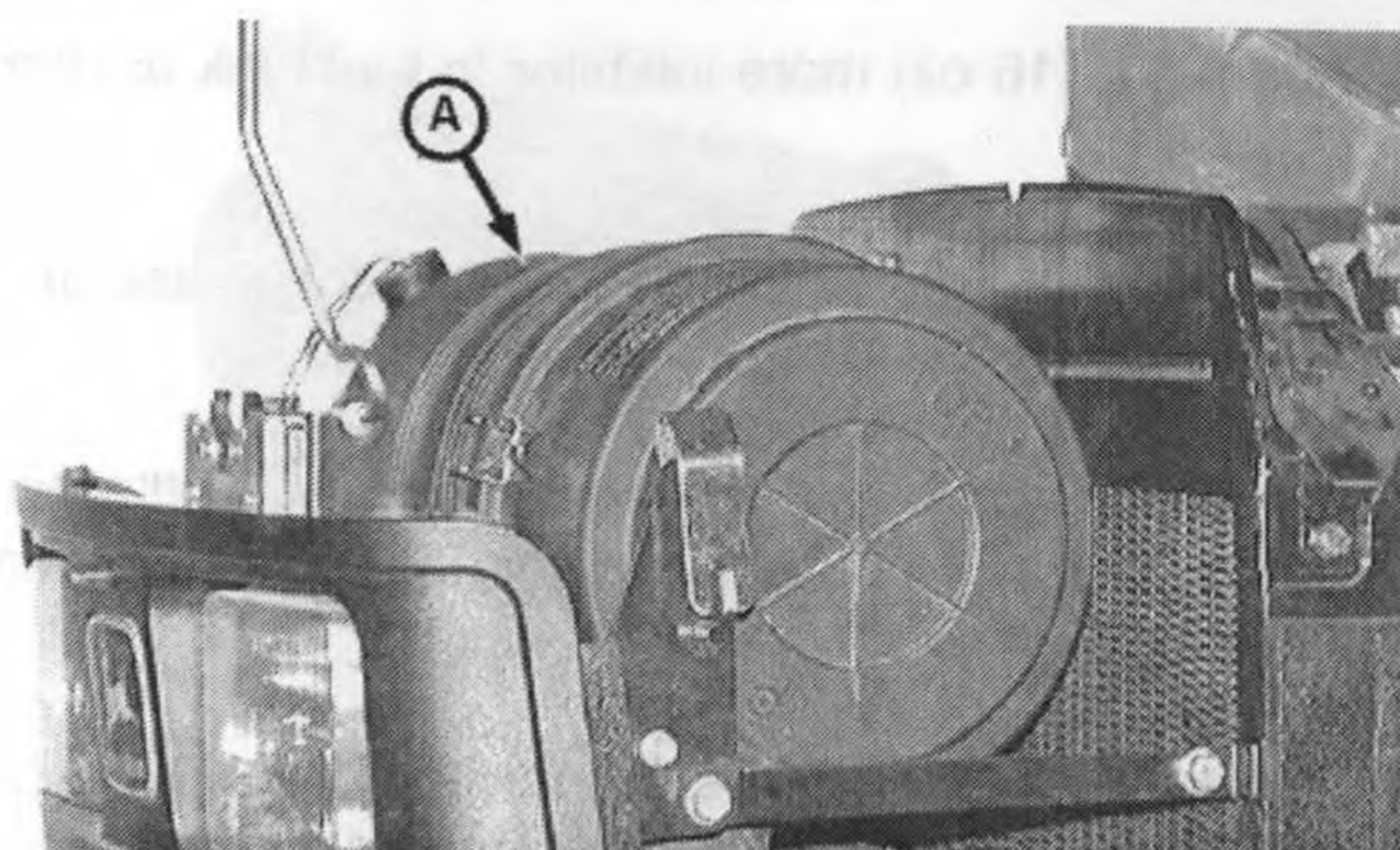
Storage

Storing Tractor

IMPORTANT: Any time tractor will not be used for several months, use this procedure to minimize corrosion and deterioration. Use an AR41785 Engine Storage Kit and an extra 0.95 L (1 pt) of AR41870 Corrosion Inhibitor.

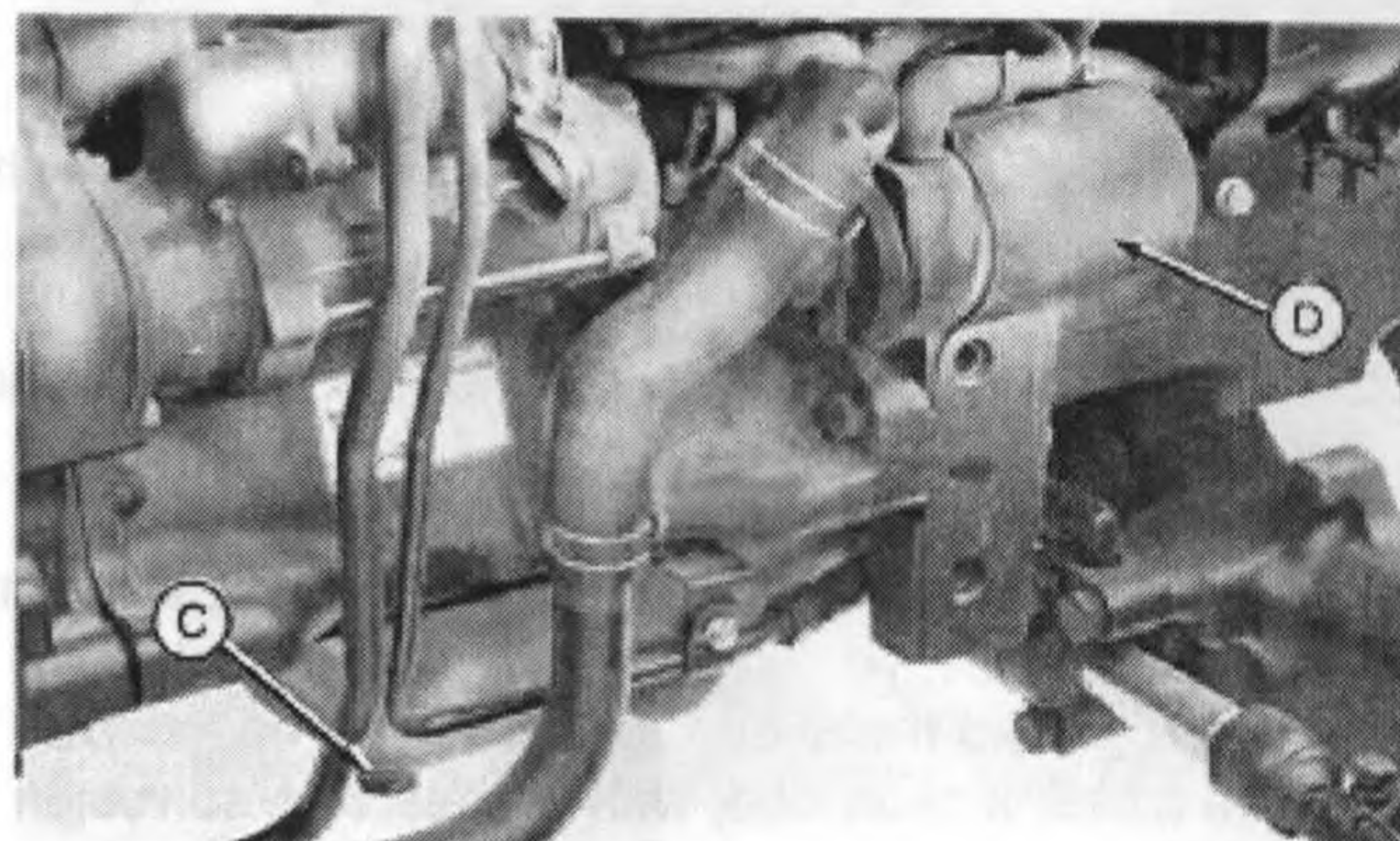
NOTE: 5210 and 5310 shown. Other models are similar.

1. Service air cleaner (A). (See Servicing Air Cleaner in Service section.)
2. If coolant has been in tractor for two years, flush cooling system (B). (See Flushing Cooling System in Service section.) Add 50 percent antifreeze water mixture. Test coolant for adequate cold weather protection.
3. Change engine oil (C) and filter (D). (See Change Engine Oil and Filter in Service—100 Hours section.)
4. Drain fuel and add back 4 L (1 gal) of fuel. Then add 0.4 L (12 oz) of corrosion inhibitor.



5210 and 5310 Shown

LV3035 -UN-17AUG99



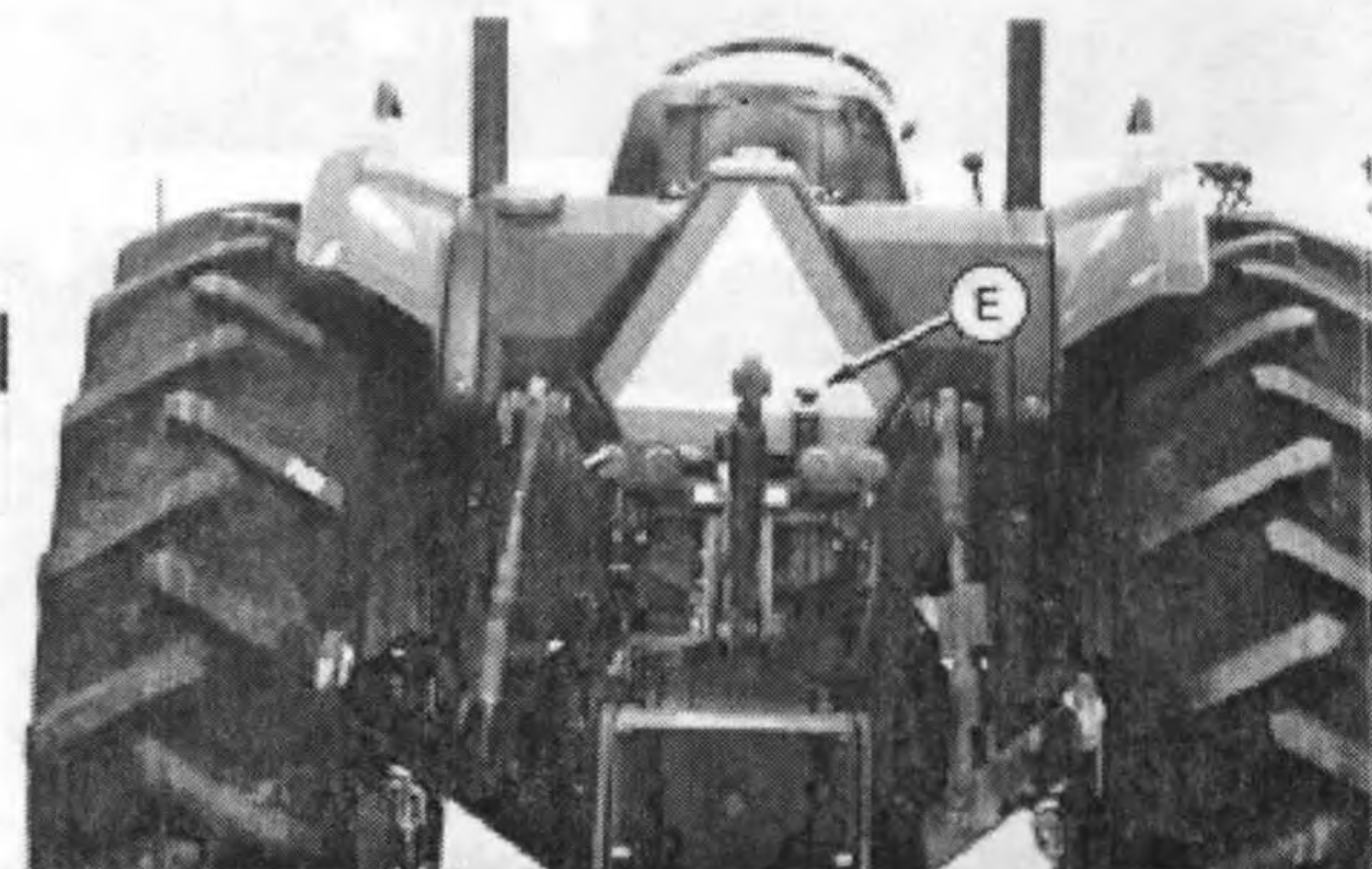
M47145 -UN-29JAN92

- A—Air Cleaner
- B—Cooling System
- C—Engine Oil Drain Plug
- D—Engine Oil Filter

LV,5010ST,C -19-01JUN99-1/4

5. Add 0.25 L (9 oz) of corrosion inhibitor to transmission-hydraulic system fill port (E).
6. Depress clutch and start engine. Run engine until it reaches operating temperature. Also raise and lower rockshaft several times. Shut off engine.

E—Transmission-Hydraulic System Fill Port



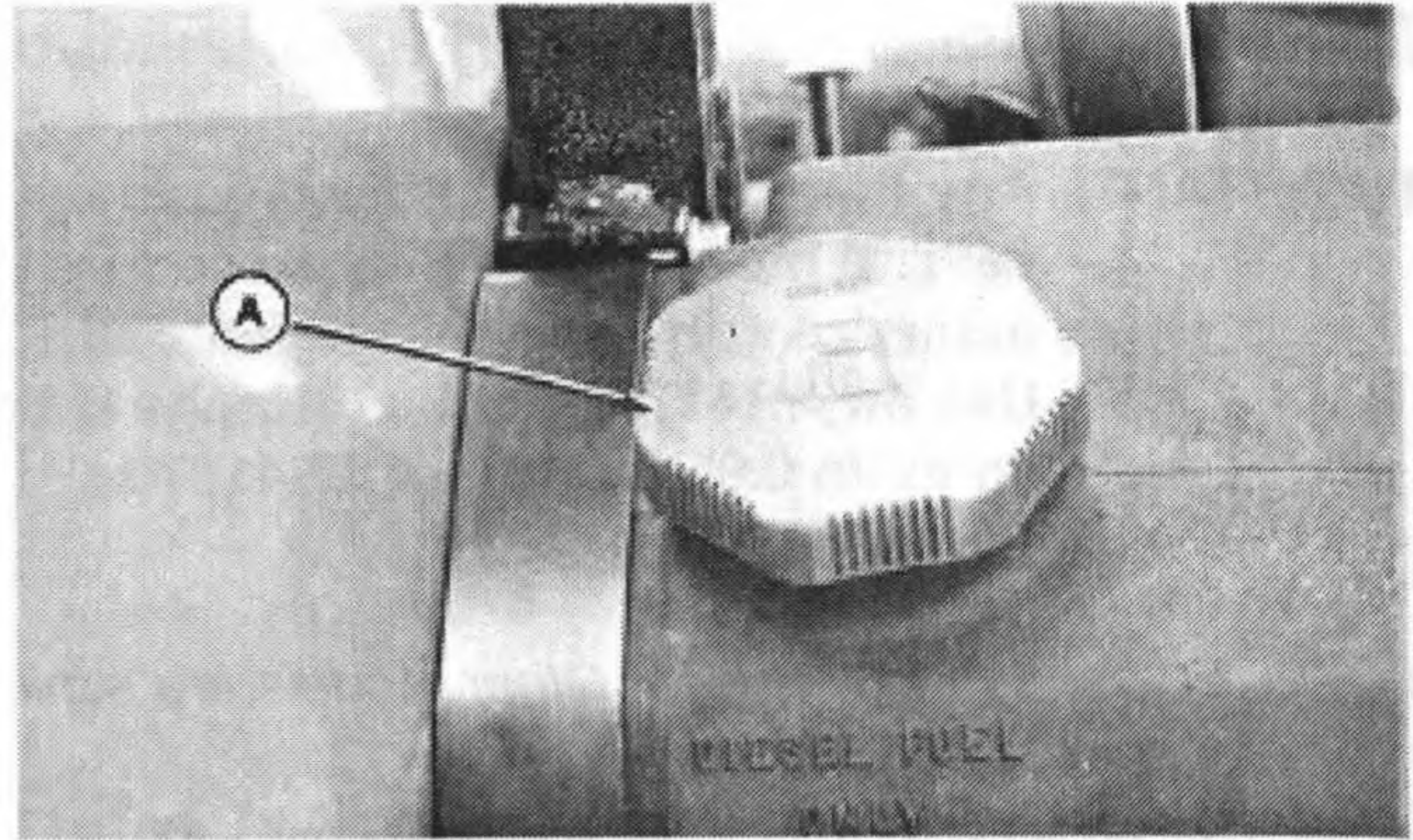
M47146 -UN-29JAN92

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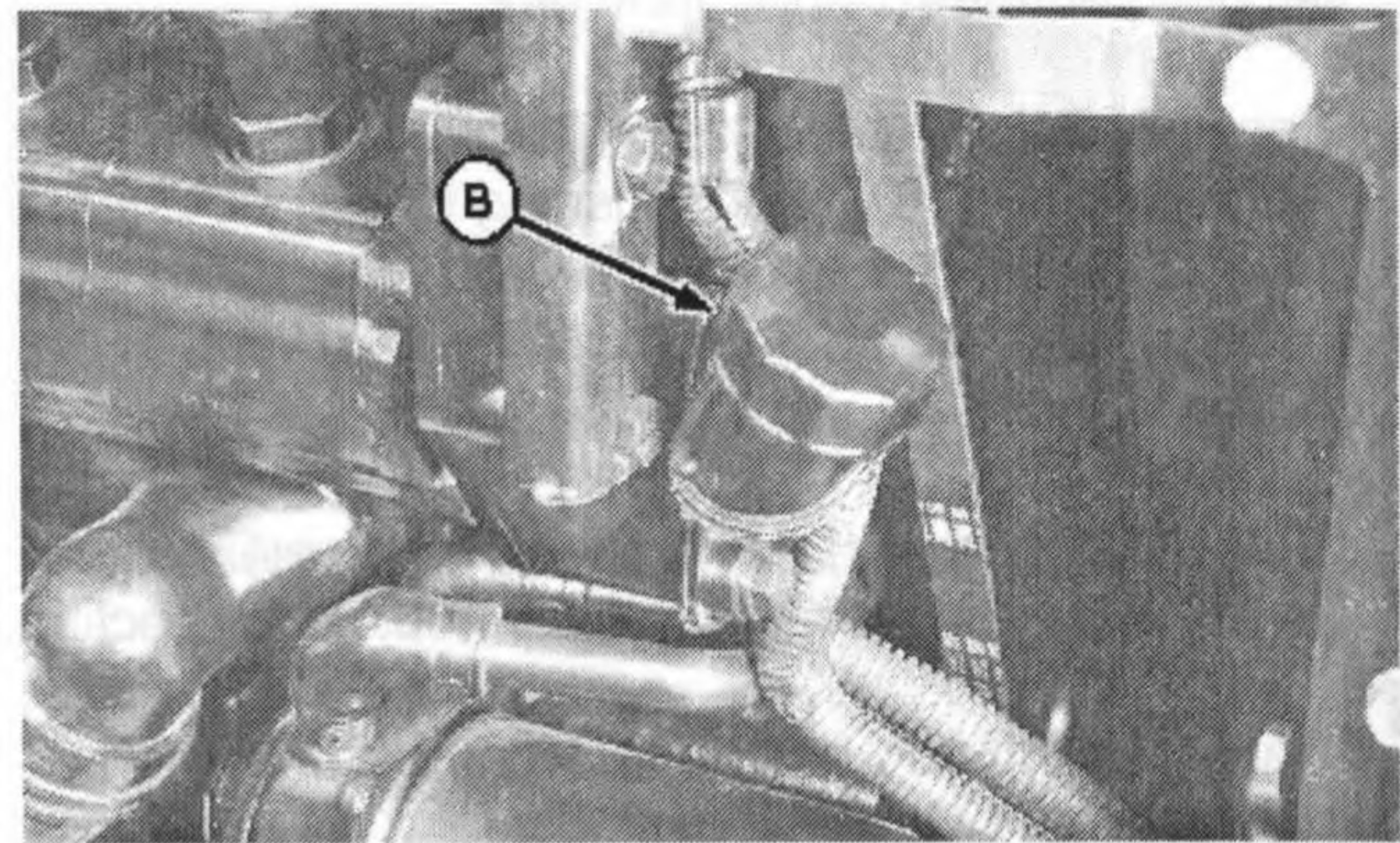
LV,5010ST,C -19-01JUN99-2/4

7. Add 0.5 L (16 oz) more inhibitor to fuel tank at filler/cap (A).
8. Add 0.5 L (16 oz) inhibitor to engine crankcase at filler/breather (B).
9. Remove boot (C) and disconnect fuel shut-off solenoid wiring lead (D). This will prevent engine from starting while cranking.
10. Remove air intake hose at manifold. Pour 0.1 L (3 oz) inhibitor into manifold and replace hose. Pull hand throttle back to slow idle position. Crank engine only a few revolutions.
11. Loosen alternator/fan belt and A/C compressor belt (cab) after they have cooled.
12. Remove and clean battery. Store in a cool, dry place. Keep it charged.¹
13. Tie or block clutch pedal in the disengaged position.
14. Coat exposed metal surfaces, such as adjustable front axles, if extended, with grease or a corrosion inhibitor.

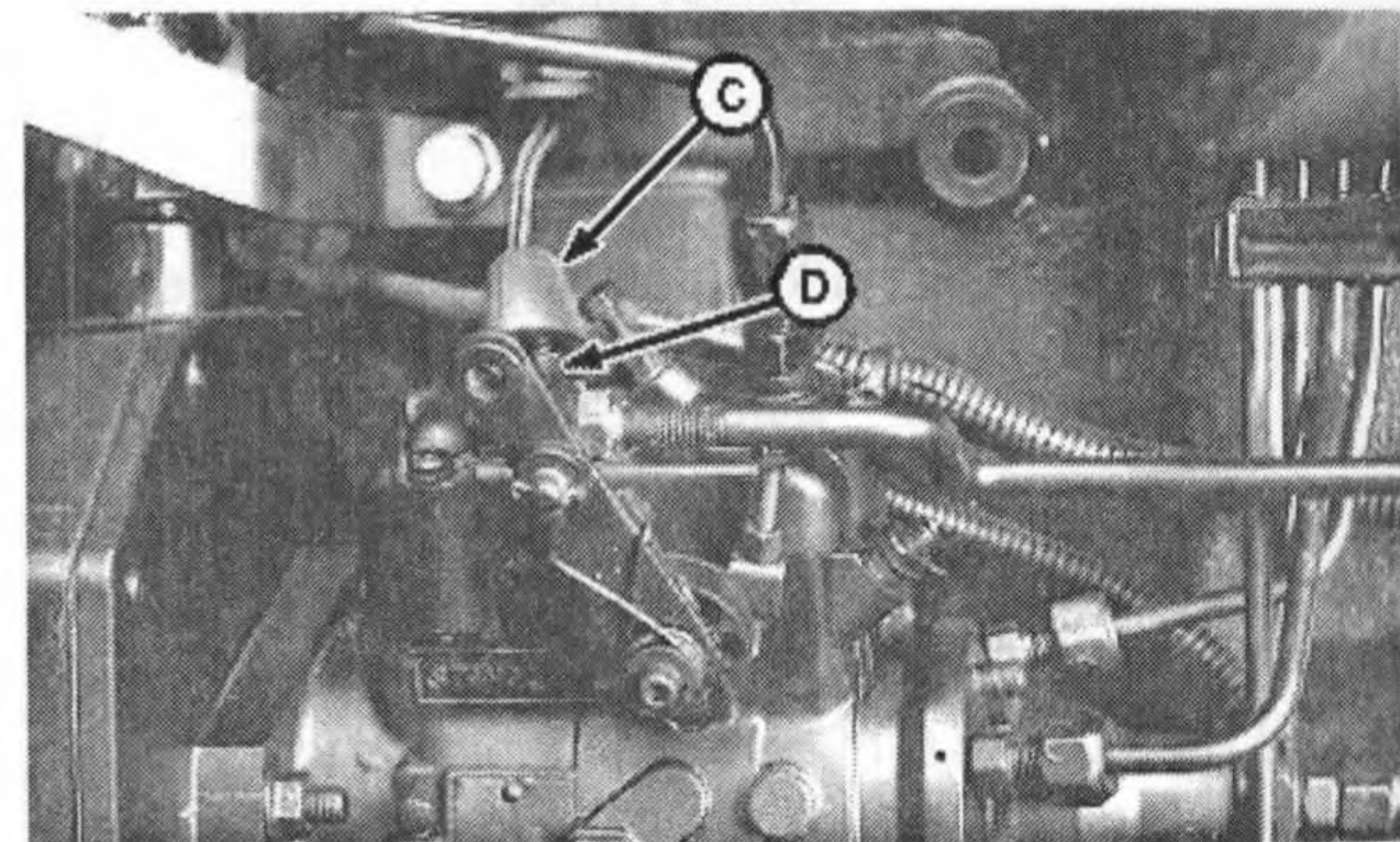
A—Fuel Tank Filler/Cap
B—Crankcase Filler/Breather
C—Boot
D—Fuel Shut-Off Solenoid Wiring Lead



M47147 -UN-29JAN92



LV1714 -UN-29MAY97



LV1923 -UN-02SEP97

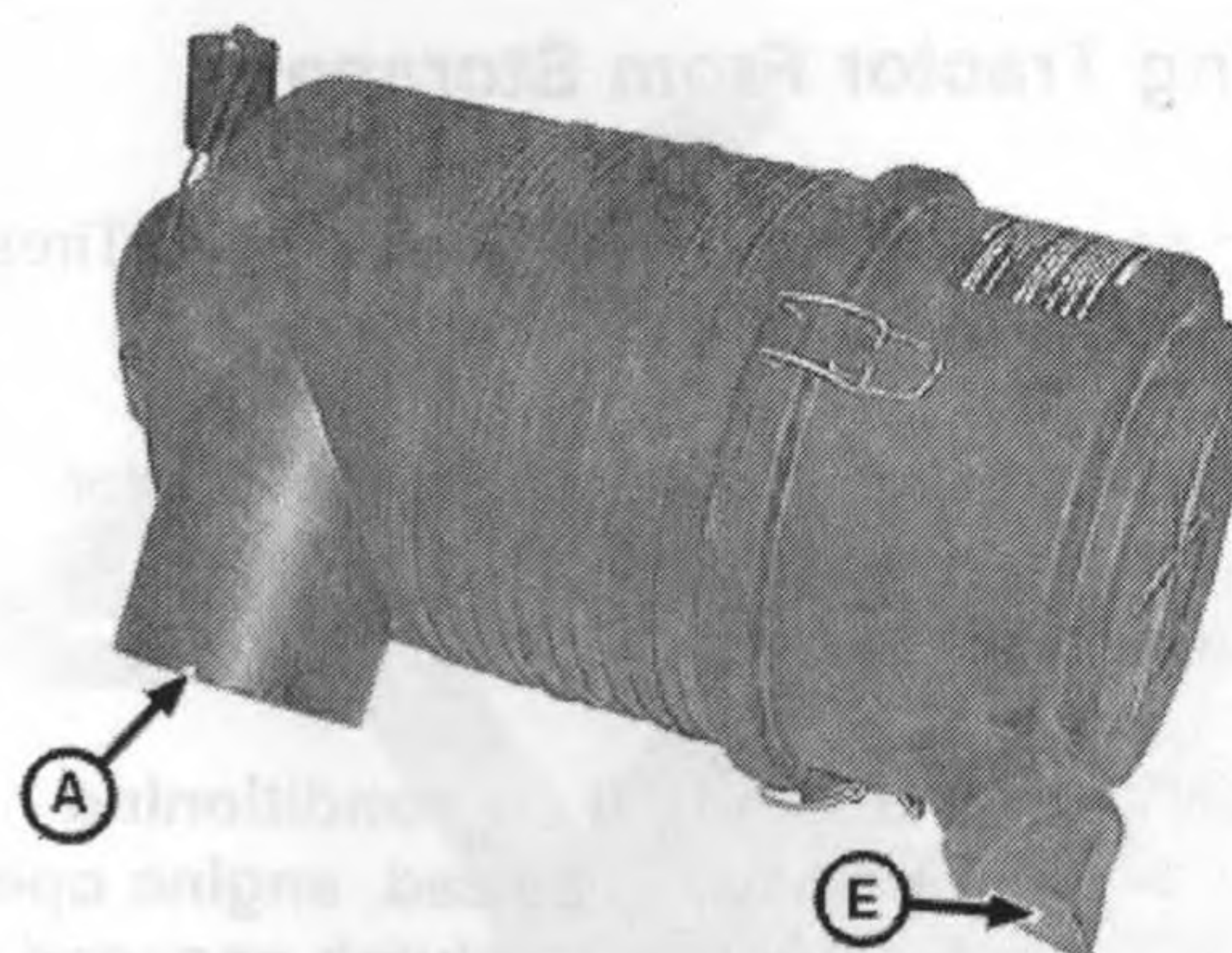
¹ Disconnect battery ground cable for short-term storage periods (20 to 90 days).

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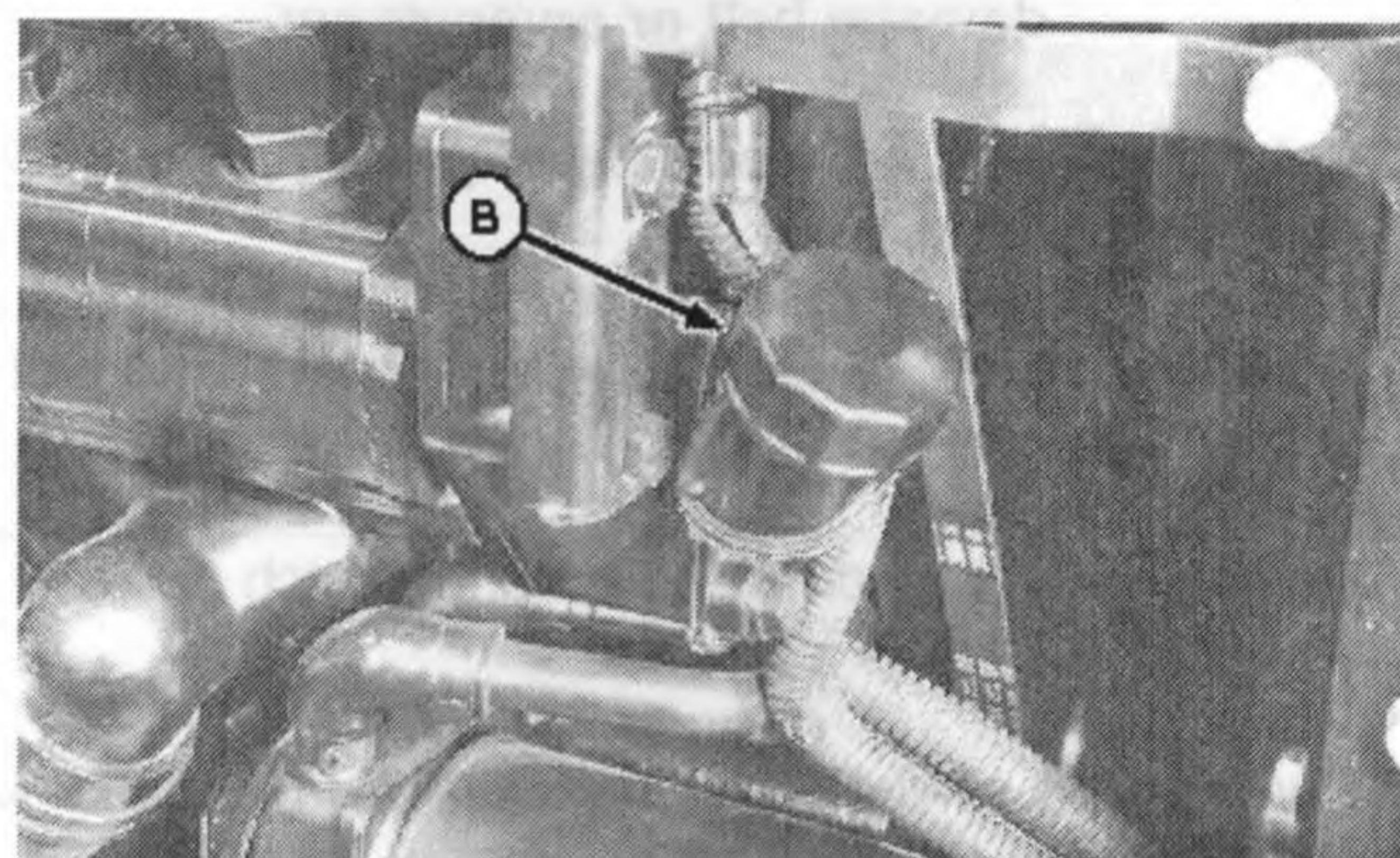
LV,5010ST,C -19-01JUN99-3/4

15. Use tape to seal air inlet hole (A), dust unloader valve (E), exhaust pipe, crankcase filler/breather (B), fuel cap, coolant recovery tank, and transmission-hydraulic system filler/cap (C).
16. Cover dash with opaque material to prevent gauges from fading.
17. Raise tires off ground. Protect them from heat and sunlight.
18. Thoroughly clean tractor. Touch up any painted surfaces that are scratched or chipped.
19. If tractor must be stored outside, cover it with a waterproof material.
20. **Cab:** Rotate A/C compressor pulley (D) several turns once a month to prevent seizure of compressor.

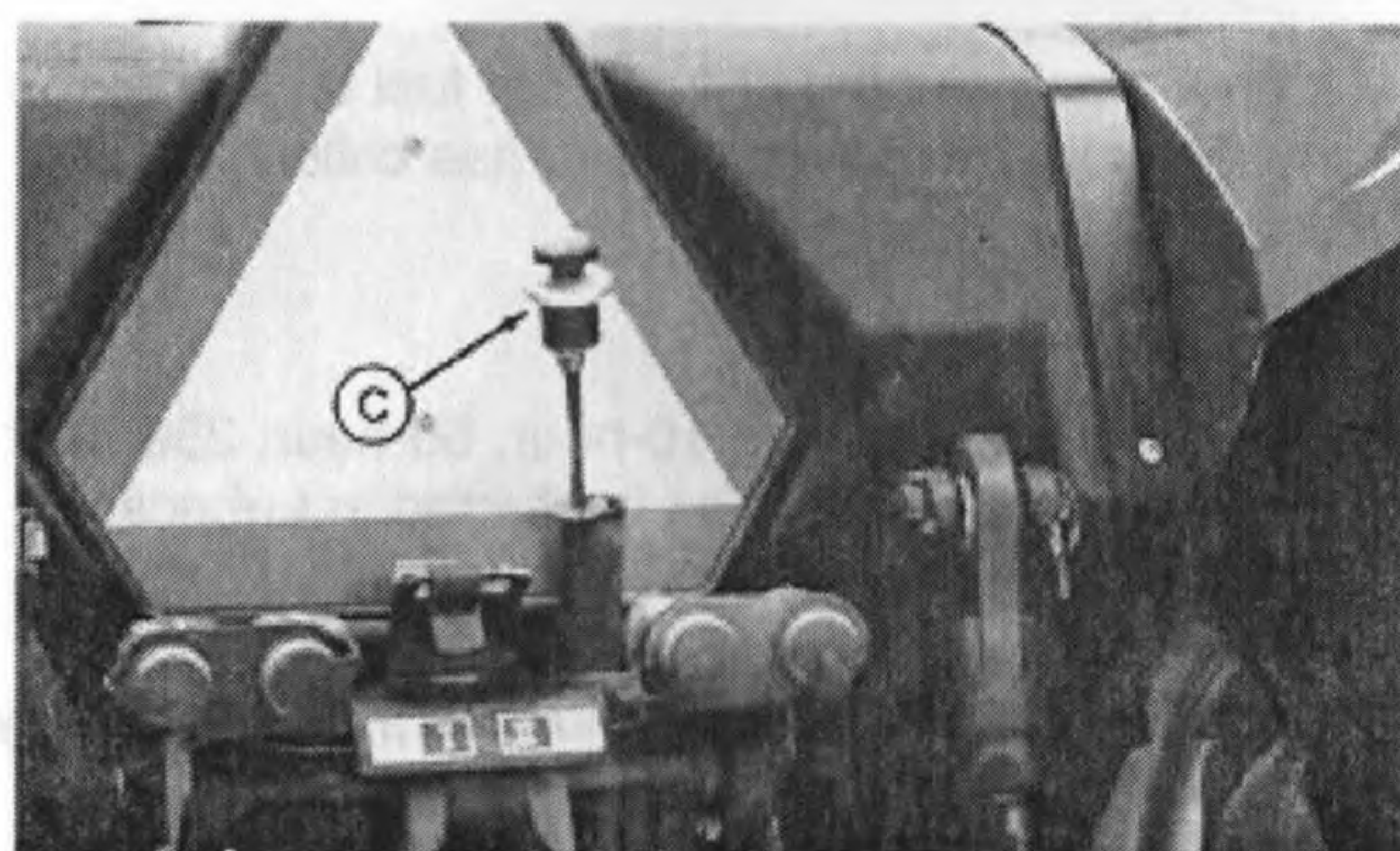
A—Air Cleaner Inlet Hole
 B—Crankcase Filler/Breather
 C—Transmission-Hydraulic System Filler/Cap
 D—A/C Compressor Pulley (Cab)
 E—Dust Unloader Valve



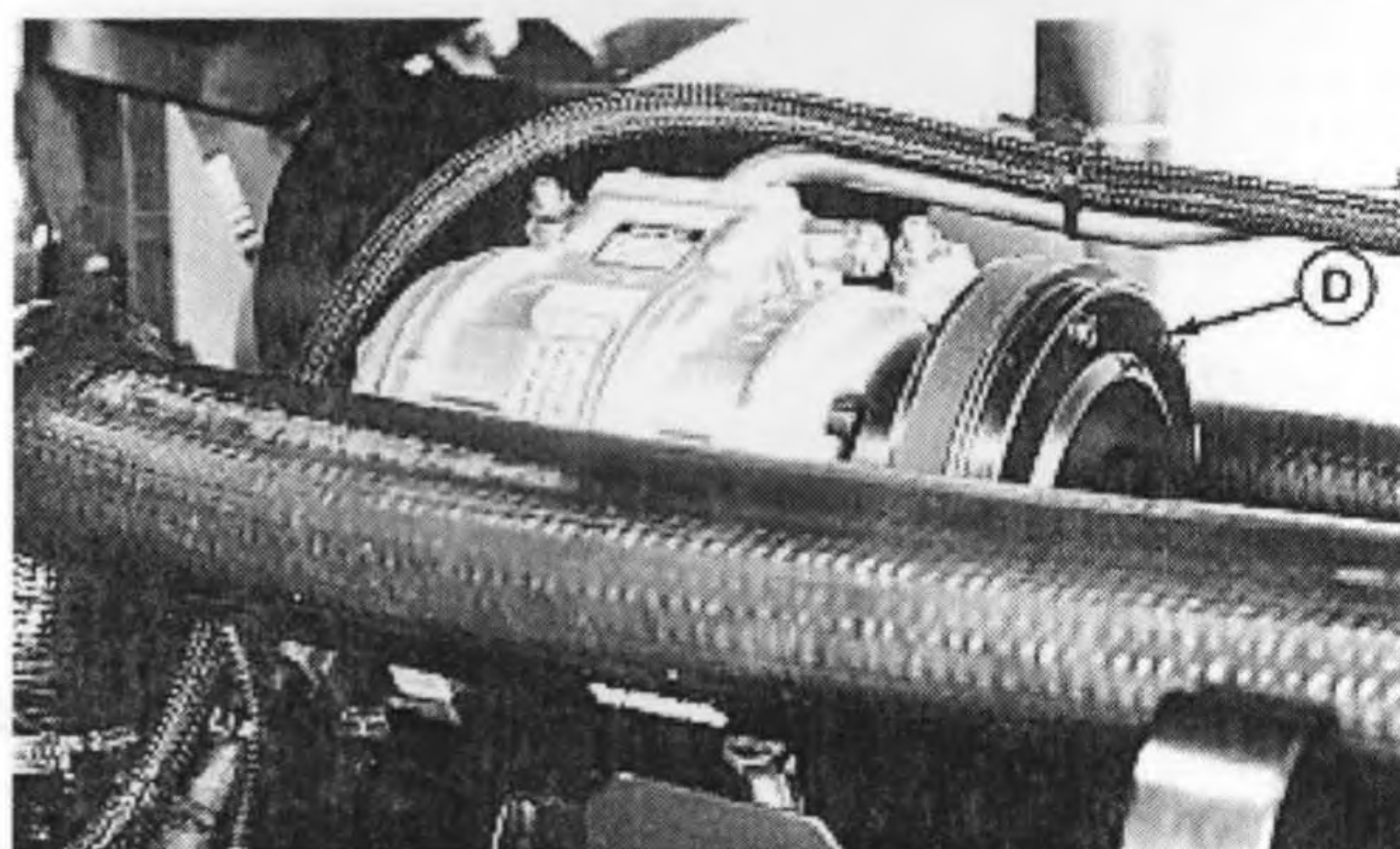
LV3040 -UN-19AUG99



LV1714 -UN-29MAY97



M46987 -UN-31JAN92



LV1505 -UN-10JAN96

Removing Tractor From Storage

1. Check tire inflation pressure. (See Wheels, Tires and Treads section.) Lower tires to ground.
2. Unseal all openings sealed in "Storing Tractor".
3. Install battery.

IMPORTANT: Cab tractors: If air conditioning compressor is seized, engine operation with compressor clutch engaged will damage belt or compressor.

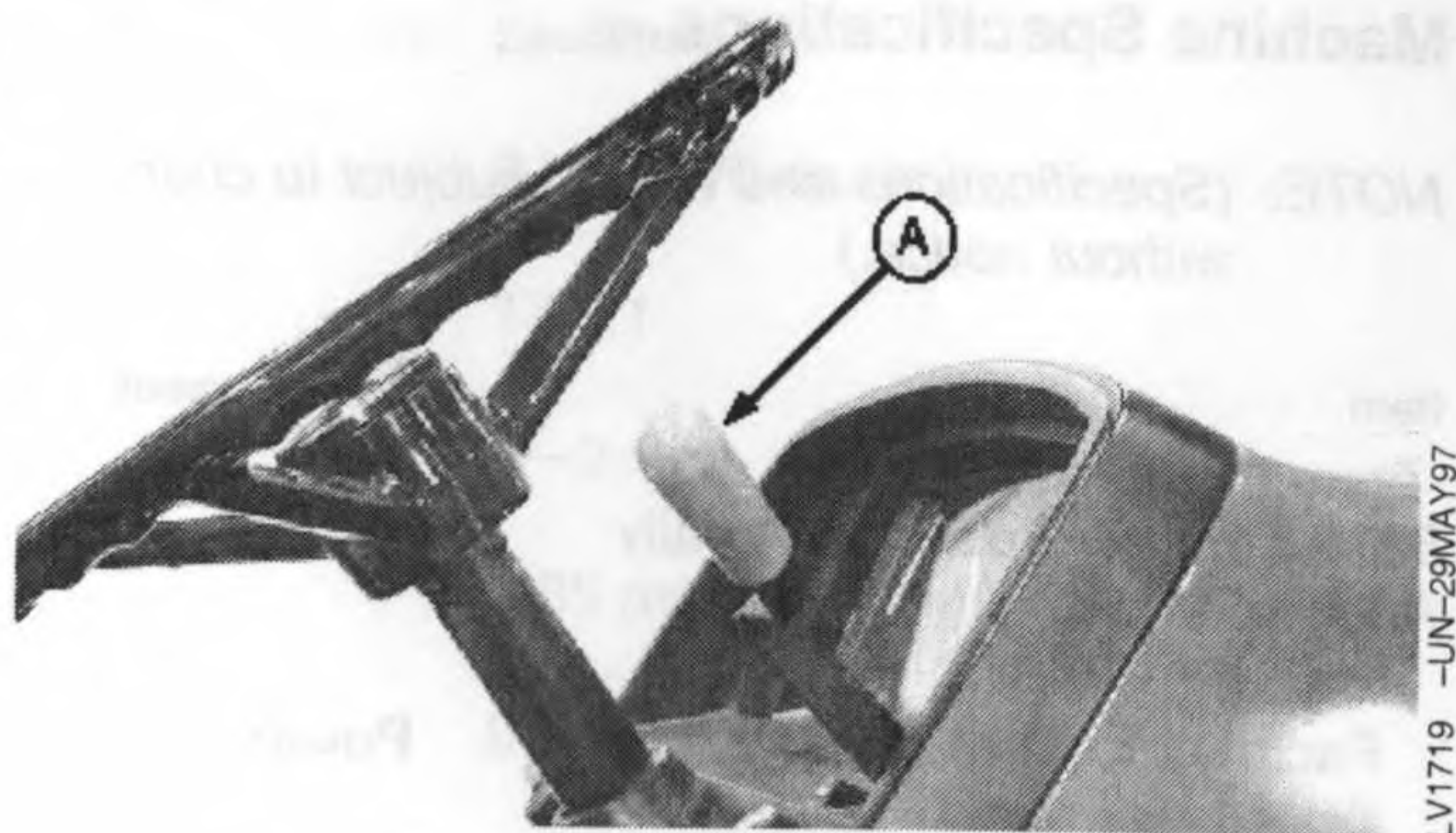
4. **Cab:** Check that A/C compressor pulley moves freely and is not seized.
5. **5210 and 5310:** Adjust tension of alternator/fan belt and A/C compressor belt (Cab).
6. Remove ties or block which secured clutch pedal down.
7. Check levels of engine oil, transmission-hydraulic oil, and engine coolant, Add if necessary.
8. Drain a small amount of fuel from fuel tank to purge any moisture condensation that has collected.
9. Fill fuel tank.
10. Perform all appropriate 10-hour, 50-hour, 250-hour, and 600-hour services as instructed in Lubrication and Maintenance section.
11. Check all instruments and indicators by turning key switch to ON position.

Continued on next page

LV.5010ST,D -19-04SEP97-1/2

IMPORTANT: DO NOT operate starter more than 20 seconds at a time, and wait at least two minutes for starter to cool before trying again.

12. Pull hand throttle (A) all the way back, depress clutch pedal, and crank engine until oil pressure rises.
13. Connect wiring lead to fuel injection pump shut-off solenoid.
14. Depress clutch pedal and start engine. Operate engine at slow idle for several minutes. Warm up carefully and check all systems before placing tractor under load.



A—Hand Throttle

LV,5010ST,D -19-04SEP97-2/2

LV1719 -UN-29MAY97

Specifications

Machine Specifications

NOTE: (Specifications and design subject to change without notice.)

Item	Measurement	Specification
5210 Engine—3029D, Naturally Aspirated		
Factory Observed PTO	Power	33.6 kW (45 hp) at 2400 rpm
Maximum Engine	Torque	162 N•m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)
Displacement	Volume	2.9 L (179 cu in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	825—875 rpm
Fast Idle	Speed	2550—2600 rpm
Operating Range	Speed	1600—2400 rpm
Injection Pump Timing	Position	6° BTDC (TimeTrac)
5310 Engine—3029T, Turbocharged		
Factory Observed PTO	Power	41 kW (55 hp) at 2400 rpm
Maximum Engine	Torque	195 N•m at 1400 rpm
Cylinders	Quantity	3
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	110 mm (4.33 in.)

Continued on next page

LV,5010SP,C -19-09SEP97-1/7

Specifications

Item	Measurement	Specification
Displacement	Volume	2.9 L (179 cu. in.)
Compression	Ratio	17.8:1
Cylinder Firing	Order	1—2—3
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	825—875 rpm
Fast Idle	Speed	2550—2600 rpm
Operating Range	Speed	1600—2400 rpm
Injection Pump Timing	Position	7° BTDC (TimeTrac)
5410 Engine—4045D, Naturally Aspirated		
Factory Observed PTO	Power	48.5 kW (65 hp) at 2400 rpm
Maximum Engine	Torque	243 N•m at 1400 rpm
Cylinders	Quantity	4
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	127 mm (5.0 in.)
Displacement	Volume	4.5 L (278 cu. in.)
Compression	Ratio	17.6:1
Cylinder Firing	Order	1—3—4—2
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	825—875 rpm
Fast Idle	Speed	2550—2600 rpm
Operating Range	Speed	1600—2400 rpm

Continued on next page

LV.5010SP,C -19-09SEP97-2/7

Specifications

Item	Measurement	Specification
Injection Pump Timing	Position	9° BTDC (TimeTrac)
5510 Engine—4045T, Turbocharged		
Factory Observed PTO	Power	55.9 kW (75 hp) at 2400 rpm
Maximum Engine	Torque	308 N•m at 1500 rpm
Cylinders	Quantity	4
Bore	Distance	106.5 mm (4.19 in.)
Stroke	Distance	127 mm (5.0 in.)
Displacement	Volume	4.5 L (278 cu. in.)
Compression	Ratio	17.0:1
Cylinder Firing	Order	1—3—4—2
Intake Valve	Clearance	0.35 mm (0.014 in.)
Exhaust Valve	Clearance	0.45 mm (0.018 in.)
Slow Idle	Speed	825—875 rpm
Fast Idle	Speed	2550—2600 rpm
Operating Range	Speed	1600—2400 rpm
Injection Pump Timing	Position	8° BTDC (TimeTrac)
Electrical System—12-Volt, Negative Ground		
Battery	Voltage Cold Cranking Amps	12-volt 700 CCA
Open Station	BCI Group Size	28 H
Cab	BCI Group Size	31
Alternator—All Machines with Open Station	Amperage	40 amps

Continued on next page

LV,5010SP,C -19-09SEP97-3/7

Specifications

Item	Measurement	Specification
Alternator—5210 and 5310 with Cab	Amperage	60 amps
Alternator—5410 and 5510 with Cab	Amperage	60 amps
Starting Motor	Voltage	12 volts

Transmission:

- Standard 9/3 CollarShift Transmission
- Optional 9/3 SyncShuttle™, 9/3 SyncShuttle™ with shiftable 540/540E PTO or 12/12 PowrReverser™
- Lever Gear Selector
- Manual Shift

Brakes:

- Hydraulically Operated
- Wet Disk
- Self-Adjusting

Power Take-Off:

- Standard Fully Independent PTO (540)
- Operational SyncShuttle™ Shiftable 540/540E Independent
- Lever Operated Clutch

Item	Measurement	Specification
Power Take-Off		
Engine—540E (SyncShuttle™)	Speed	1700 rpm
Engine—540	Speed	2400 rpm
Power Take-Off	Size	280 mm (11 in.)

Hydraulic System:

- Open Center Type
- Tandem Gear Pump
- Hydrostatic Power Steering

Continued on next page

LV,5010SP,C -19-09SEP97-4/7

Specifications

Item	Measurement	Specification
5210—Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)
Pump Displacement—Implement	Displacement	20 cu cm (1.22 cu in.)
Steering ¹	Flow Rate	25.7 L/min. (6.8 gpm)
Implement ¹	Flow Rate	43.2 L/min. (11.4 gpm)
Steering (Maximum)	Pressure	12 997—13 500 kPa (130—135 bar) (1885—1955 psi)
Implement (Maximum)	Pressure	18 995—19 692 kPa (190—197 bar) (2755—2855 psi)
Hitch Lift	Capacity	1530 kg (3374 lb)
SCV	Flow Rate	43.2 L/min (11.4 gpm)
5310—Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)
Pump Displacement—Implement	Displacement	20 cu cm (1.22 cu in.)
Steering ¹	Flow Rate	25.7 L/min. (6.8 gpm)
Implement ¹	Flow Rate	43.2 L/min. (11.4 gpm)
Steering (Maximum)	Pressure	12 997—13 500 kPa (130—135 bar) (1885—1955 psi)
Implement (Maximum)	Pressure	18 995—19 692 kPa (190—197 bar) (2755—2855 psi)
Hitch Lift	Capacity	1530 kg (3374 lb)
SCV	Flow Rate	43.2 L/min (11.4 gpm)
5410—Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)

¹ Flow rate at 90% pump efficiency and engine at rated speed.

Specifications

Item	Measurement	Specification
Pump Displacement—Implement	Displacement	28.8 cu cm (1.76 cu in.)
Steering ¹	Flow Rate	24.9 L/min. (6.6 gpm)
Implement ¹	Flow Rate	62.1 L/min. (16.4 gpm)
Steering (Maximum)	Pressure	12 997—13 500 kPa (130—135 bar) (1885—1955 psi)
Implement (Maximum)	Pressure	18 995—19 692 kPa (190—197 bar) (2755—2855 psi)
Hitch Lift	Capacity	1530 kg (3374 lb)
SCV	Flow Rate	62.1 L/min (16.4 gpm)
5510—Hydraulic System		
Pump Displacement—Steering	Displacement	11.9 cu cm (0.73 cu in.)
Pump Displacement—Implement	Displacement	28.8 cu cm (1.76 cu in.)
Steering ¹	Flow Rate	24.9 L/min. (6.6 gpm)
Implement ¹	Flow Rate	62.1 L/min. (16.4 gpm)
Steering (Maximum)	Pressure	12 997—13 500 kPa (130—135 bar) (1885—1955 psi)
Implement (Maximum)	Pressure	18 995—19 692 kPa (190—197 bar) (2755—2855 psi)
Hitch Lift	Capacity	1530 kg (3374 lb)
SCV	Flow Rate	62.1 L/min (16.4 gpm)

Three-Point Hitch:

- Categories I and II
- Top Link Sensing
- Standard: Fixed Draft Links with Interchangeable Balls

¹ Flow rate at 90% pump efficiency and engine at rated speed.

Specifications

- Optional: Telescopic Draft Links with Interchangeable Balls

Item	Measurement	Specification
Three-Point Hitch		
Lift Capacity at 610 mm (24 in.) Behind Hitch Balls	Capacity	1530 kg (3374 lb)

LV,5010SP,C -19-09SEP97-7/7

Drain and Refill Capacities

Item	Measurement	Specification
Fuel Tank		
Open Station—5210, 5310 and 5410	Capacity	68 L (18 gal) Approximate
Open Station—5510	Capacity	87 L (23 gal) Approximate
Cab Machines	Capacity	87 L (23 gal) Approximate
Cooling System		
5210 and 5310	Capacity	9.5 L (10 qt) Approximate
5410 and 5510	Capacity	10.8 L (11.4 qt) Approximate
Crankcase (including filter change)	Capacity	8.5 L (9 gal) Approximate
Transmission/Hydraulic System		
Dry Clutch (CollarShift and SyncShuttle™ Transmission)	Capacity	38 L (10 gal) Approximate
Wet Clutch (PowrReverser™ Transmission)	Capacity	43.5 L (11.5 gal) Approximate
Mechanical Front Wheel Drive (MFWD)		
Wheel Hubs	Capacity	0.6 L (0.6 qt) Approximate
Axle Housing	Capacity	5 L (5.2 qt) Approximate
MFWD Assembly	Capacity	6.2 L (5.7 qt) Approximate

SyncShuttle is a trademark of Deere & Company
PowrReverser is a trademark of Deere & Company

AG,OUO1032,1414 -19-19MAY99-1/1

5210 Machine Dimensions

NOTE: (Specifications and design subject to change without notice.)

NOTE: All dimensions are of a machine equipped with standard tires.

Item	Measurement	Specification
5210 with 2-Wheel Drive		
Standard Front Tire	Size	6.5-16
Standard Rear Tire	Size	13.6-28
Overall Width (with Roll-Gard ROPS/Cab)	Width	1661 mm (65.4 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3114 mm (122.6 in.)
Overall Height from Ground-to-Top of Hood	Height	1425 mm (56.1 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1595 mm (62.8 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2230 mm (87.8 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	1895 mm (74.6 in.)
Overall Height from Ground-to-Top of Cab	Height	2464 mm (97 in.)
Overall Height from Ground-to-Top of Drawbar	Height	401 mm (15.8 in.)
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	495 mm (19.5 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1285 mm (50.6 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)

Specifications

Item	Measurement	Specification
Wheelbase	Width	2050 mm (80.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	2.96 m (9.7 ft)
Turning Radius without Brakes	Radius	3.44 m (11.3 ft)
Average Shipping Weight, Unballasted ¹	Weight	1932 kg (4250 lb)
5210 with MFWD		
Standard Front Tire	Size	8.3-24
Standard Rear Tire	Size	13.6-28
Overall Width (with Roll-Gard ROPS/Cab)	Width	1661 mm (65.4 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3198 mm (125.9 in.)
Overall Height from Ground-to-Top of Hood	Height	1453 mm (57.2 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1595 mm (62.8 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2230 mm (87.8 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	1895 mm (74.6 in.)
Overall Height from Ground-to-Top of Cab	Height	2464 mm (97 in.)
Overall Height from Ground-to-Top of Drawbar	Height	378 mm (14.9 in.)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

Specifications

Item	Measurement	Specification
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	340 mm (13.4 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1285 mm (50.6 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)
Wheelbase	Width	2050 mm (80.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	2.96 m (9.7 ft)
Turning Radius with Brakes ²	Radius	3.11 m (10.2 ft)
Turning Radius without Brakes	Radius	3.81 m (12.5 ft)
Turning Radius without Brakes ²	Radius	3.44 m (11.3 ft)
Average Shipping Weight, Unballasted ¹	Weight	2109 kg (4650 lb)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

² With MFWD disengaged.

AG,OUO1032,2566 -19-23AUG99-3/3

5310 Machine Dimensions

NOTE: (Specifications and design subject to change without notice.)

NOTE: All dimensions are of a machine equipped with standard tires.

Item	Measurement	Specification
5310 with 2-Wheel Drive		
Standard Front Tire	Size	7.50-16
Standard Rear Tire	Size	14.9-28
Overall Width (with Roll-Gard ROPS/Cab)	Width	1694 mm (66.7 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3139 mm (123.6 in.)
Overall Height from Ground-to-Top of Hood	Height	1453 mm (57.2 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1618 mm (63.7 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2253 mm (88.7 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	1918 mm (75.5 in.)
Overall Height from Ground-to-Top of Cab	Height	2487 mm (97.9 in.)
Overall Height from Ground-to-Top of Drawbar	Height	401 mm (15.8 in.)
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	460 mm (18.1 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1285 mm (50.6 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)

Specifications

Item	Measurement	Specification
Wheelbase	Width	2050 mm (80.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	2.96 m (9.7 ft)
Turning Radius without Brakes	Radius	3.44 m (11.3 ft)
Average Shipping Weight, Unballasted ¹	Weight	1977 kg (4350 lb)
5310 with MFWD		
Standard Front Tire	Size	9.5-24
Standard Rear Tire	Size	14.9-28
Overall Width (with Roll-Gard ROPS/Cab)	Width	1694 mm (66.7 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3274 mm (128.1 in.)
Overall Height from Ground-to-Top of Hood	Height	1481 mm (58.3 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1618 mm (63.7 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2253 mm (88.7 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	1918 mm (75.5 in.)
Overall Height from Ground-to-Top of Cab	Height	2487 mm (97.9 in.)
Overall Height from Ground-to-Top of Drawbar	Height	414 mm (16.3 in.)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

Specifications

Item	Measurement	Specification
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	376 mm (14.8 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1285 mm (50.6 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)
Wheelbase	Width	2050 mm (80.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	3.02 m (9.9 ft)
Turning Radius with Brakes ²	Radius	3.11 m (10.2 ft)
Turning Radius without Brakes	Radius	3.81 m (12.5 ft)
Turning Radius without Brakes ²	Radius	3.44 m (11.3 ft)
Average Shipping Weight, Unballasted ¹	Weight	2155 kg (4750 lb)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

² With MFWD disengaged.

5410 Machine Dimensions

Item	Measurement	Specification
5410 with 2-Wheel Drive		
Standard Front Tire	Size	7.50-16
Standard Rear Tire	Size	16.9-30
Overall Width (with Roll-Gard ROPS/Cab)	Width	1745 mm (68.7 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3198 mm (125.9 in.)
Overall Height from Ground-to-Top of Hood	Height	1453 mm (57.2 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1661 mm (65.4 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2316 mm (91.2 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	1981 mm (78 in.)
Overall Height from Ground-to-Top of Cab	Height	2550 mm (100.4 in.)
Overall Height from Ground-to-Top of Drawbar	Height	498 mm (19.6 in.)
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	465 mm (18.3 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1285 mm (50.6 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)
Wheelbase	Width	2050 mm (80.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	2.96 m (9.7 ft)

Specifications

Item	Measurement	Specification
Turning Radius without Brakes	Radius	3.44 m (11.3 ft)
Average Shipping Weight, Unballasted ¹	Weight	2267 kg (5000 lb)
5410 with MFWD		
Standard Front Tire	Size	11.2-24
Standard Rear Tire	Size	16.9-30
Overall Width (with Roll-Gard ROPS/Cab)	Width	1745 mm (68.7 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3310 mm (130.3 in.)
Overall Height from Ground-to-Top of Hood	Height	1501 mm (59.1 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1661 mm (65.4 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2316 mm (91.2 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	1981 mm (78 in.)
Overall Height from Ground-to-Top of Cab	Height	2550 mm (100.4 in.)
Overall Height from Ground-to-Top of Drawbar	Height	478 mm (18.8 in.)
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	391 mm (15.4 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1285 mm (50.6 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

Specifications

Item	Measurement	Specification
Wheelbase	Width	2050 mm (80.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	3.02 m (9.9 ft)
Turning Radius with Brakes ²	Radius	3.11 m (10.2 ft)
Turning Radius without Brakes	Radius	3.81 m (12.5 ft)
Turning Radius without Brakes ²	Radius	3.44 m (11.3 ft)
Average Shipping Weight, Unballasted ¹	Weight	2494 kg (5500 lb)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

² With MFWD disengaged.

AG,OUO1032,2568 -19-23AUG99-3/3

5510 Machine Dimensions

NOTE: (Specifications and design subject to change without notice.)

NOTE: All dimensions are of a machine equipped with standard tires.

Item	Measurement	Specification
5510 with 2-Wheel Drive		
Standard Front Tire	Size	7.50-16
Standard Rear Tire	Size	16.9-30
Overall Width (with Roll-Gard ROPS/Cab)	Width	1745 mm (68.7 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3510 mm (138.2 in.)
Overall Height from Ground-to-Top of Hood	Height	1453 mm (57.2 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1697 mm (66.8 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2482 mm (97.7 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	2024 mm (79.7 in.)
Overall Height from Ground-to-Top of Cab	Height	2550 mm (100.4 in.)
Overall Height from Ground-to-Top of Drawbar	Height	498 mm (19.6 in.)
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	465 mm (18.3 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1328 mm (52.3 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)

Specifications

Item	Measurement	Specification
Wheelbase	Width	2177 mm (85.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	3.41 m (11.2 ft)
Turning Radius without Brakes	Radius	3.90 m (12.8 ft)
Average Shipping Weight, Unballasted ¹	Weight	2594 kg (5720 lb)
5510 with MFWD		
Standard Front Tire	Size	11.2-24
Standard Rear Tire	Size	16.9-30
Overall Width (with Roll-Gard ROPS/Cab)	Width	1745 mm (68.7 in.)
Overall Length (less Hitch, Drawbar and Front Weights)	Length	3510 mm (138.2 in.)
Overall Height from Ground-to-Top of Hood	Height	1501 mm (59.1 in.)
Overall Height from Ground-to-Top of Steering Wheel	Height	1697 mm (66.8 in.)
Overall Height from Ground-to-Top of Roll-Gard ROPS	Height	2482 mm (97.7 in.)
Overall Height from Ground-to-Top of Folded ROPS	Height	2024 mm (79.7 in.)
Overall Height from Ground-to-Top of Cab	Height	2550 mm (100.4 in.)
Overall Height from Ground-to-Top of Drawbar	Height	478 mm (18.8 in.)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

Specifications

Item	Measurement	Specification
Overall Height from Ground-to-Crop Clearance—Front Axle	Height	391 mm (15.4 in.)
Centerline of Rear Axle to Folded ROPS	Distance	1328 mm (52.3 in.)
Centerline of Rear Axle to Cab	Distance	1854 mm (73 in.)
Wheelbase	Width	2177 mm (85.7 in.)
Rear Axle	Diameter	76.2 mm (3 in.)
Turning Radius with Brakes	Radius	3.35 m (11.0 ft)
Turning Radius with Brakes ²	Radius	3.54 m (11.6 ft)
Turning Radius without Brakes	Radius	4.36 m (14.3 ft)
Turning Radius without Brakes ²	Radius	3.93 m (12.9 ft)
Average Shipping Weight, Unballasted ¹	Weight	2785 kg (6140 lb)

¹ If equipped with cab, add approximately 454 kg (1000 lb).

² With MFWD disengaged.

LV.5010SP,D -19-03JUN97-3/3

Permissible Load Specifications

NOTE: (Specifications and design subject to change without notice.)

Item	Measurement	Specification
Maximum Permissible Static Vertical Load		
Drawbar Fully Extended (PTO)	Capacity	760 kg (1675 lb)
Maximum Permissible Axle Loads—2 Wheel Drive, No Loader		
Front Tires: 6.50-16 6PR	Capacity	1240 kg (2720 lb)
Front Tires: 7.50-16 6PR	Capacity	1500 kg (3300 lb)
Front Tires: 9.5L-15 6PR	Capacity	1540 kg (3400 lb)
Front Tires: 27/9.5L-15 6PR	Capacity	1490 kg (3285 lb)
Front Tires: 11L-15 8PR	Capacity	2140 kg (4700 lb)
Maximum Permissible Axle Loads—2 Wheel Drive, with Loader		
Front Tires: 9.5L-15 6PR	Capacity	2310 kg (5100 lb)
Front Tires: 11L-15 8PR	Capacity	3210 kg (7050 lb)

IMPORTANT: Maximum permissible travel is 8 km/h (5 mph). Maximum front wheel tread is 1.80 m (71 in.).

Item	Measurement	Specification
Maximum Permissible Axle Loads—2 Wheel Drive and Mechanical Front Wheel Drive		
Rear Tires: 13.6-28 4PR	Capacity	2200 kg (4840 lb)
Rear Tires: 14.9-24 6PR	Capacity	3020 kg (6660 lb)
Rear Tires: 14.9-28 6PR	Capacity	3230 kg (7120 lb)

Specifications

Item	Measurement	Specification
Rear Tires: 16.9-24 6PR	Capacity	3450 kg (7600 lb)
Rear Tires: 16.9-28 6PR	Capacity	3680 kg (8100 lb)
Rear Tires: 16.9-30 6PR	Capacity	3790 kg (8360 lb)
Rear Tires: 18.4-16.1 6PR	Capacity	2549 kg (5620 lb)
Maximum Permissible Front Axle Loads—Mechanical Front Wheel Drive—without Loader		
Front Tires: 9.5L-16 6PR	Capacity	1603 kg (3534 lb)
Front Tires: 8.3-24 4PR	Capacity	1260 kg (2760 lb)
Front Tires: 9.5-24 6PR	Capacity	1880 kg (4140 lb)
Front Tires: 10.5/80-18 10PR	Capacity	1260 kg (2760 lb)
Front Tires: 11.2-24 6PR	Capacity	2095 kg (4620 lb)
Maximum Permissible Front Axle Loads—Mechanical Front Wheel Drive with Loader		
Front Tires: 9.5L-15 6PR	Capacity	2405 kg (5300 lb)
Front Tires: 9.5-24 6PR	Capacity	2817 kg (6210 lb)
Front Tires: 10.8/80-18 10PR	Capacity	3742 kg (8250 lb)
Front Tires: 11.2-24 6PR	Capacity	3143 kg (6930 lb)

IMPORTANT: Maximum permissible travel speed is 8 km/h (5 mph). Maximum front wheel tread is 1.80 m (71 in.).

LV.5010SP.G -19-04SEP97-2/2

Ground Speed Estimates—CollarShift and SyncShuttle™ Transmissions

NOTE: Ground Speed—km/h (mph) at 2400 rpm engine speed.

Item	Measurement	Specification
Rear Tire—9.5R48 (Hi-Crop)		
Gear Creeper C1—Optional Standard Creeper	Speed	0.44 km/h (0.27 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.63 km/h (0.39 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.86 km/h (0.54 mph)
Gear A-1	Speed	2.52 km/h (1.57 mph)
Gear A-2	Speed	3.64 km/h (2.26 mph)
Gear A-3	Speed	4.97 km/h (3.09 mph)
Gear B-1	Speed	5.96 km/h (3.70 mph)
Gear B-2	Speed	8.60 km/h (5.34 mph)
Gear B-3	Speed	11.73 km/h (7.29 mph)
Gear C-1	Speed	16.35 km/h (10.16 mph)
Gear C-2	Speed	23.61 km/h (14.67 mph)
Gear C-3	Speed	32.20 km/h (20.01 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.74 km/h (0.46 mph)
Gear A-R	Speed	4.24 km/h (2.63 mph)
Gear B-R	Speed	10.01 km/h (6.22 mph)
Gear C-R	Speed	27.49 km/h (17.08 mph)

Specifications

Item	Measurement	Specification
Rear Tires—14.9-28 R1		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.33 km/h (0.20 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.48 km/h (0.30 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.65 km/h (0.40 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.78 km/h (0.49 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.13 km/h (0.70 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.54 km/h (0.96 mph)
Gear A-1	Speed	2.01 km/h (1.25 mph)
Gear A-2	Speed	2.90 km/h (1.80 mph)
Gear A-3	Speed	3.96 km/h (2.46 mph)
Gear B-1	Speed	4.65 km/h (2.89 mph)
Gear B-2	Speed	6.71 km/h (4.17 mph)
Gear B-3	Speed	9.15 km/h (5.69 mph)
Gear C-1	Speed	12.76 km/h (7.93 mph)
Gear C-2	Speed	18.43 km/h (11.45 mph)
Gear C-3	Speed	25.13 km/h (15.62 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.55 km/h (0.34 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.32 km/h (0.82 mph)
Gear A-R	Speed	3.38 km/h (2.10 mph)
Gear B-R	Speed	7.80 km/h (4.85 mph)

Continued on next page

AG,OUO1032,1415 -19-26MAY99-2/14

Specifications

Item	Measurement	Specification
Gear C-R	Speed	21.45 km/h (13.33 mph)
Rear Tires—13.6-28 R1		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.32 km/h (0.19 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.46 km/h (0.29 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.62 km/h (0.38 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.08 km/h (0.67 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.48 km/h (0.92 mph)
Gear A-1	Speed	1.93 km/h (1.20 mph)
Gear A-2	Speed	2.78 km/h (1.73 mph)
Gear A-3	Speed	3.80 km/h (2.36 mph)
Gear B-1	Speed	4.46 km/h (2.77 mph)
Gear B-2	Speed	6.43 km/h (4.00 mph)
Gear B-3	Speed	8.77 km/h (5.46 mph)
Gear C-1	Speed	12.24 km/h (7.60 mph)
Gear C-2	Speed	17.67 km/h (10.98 mph)
Gear C-3	Speed	24.09 km/h (14.98 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.53 km/h (0.33 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.27 km/h (0.79 mph)

Continued on next page

AG.OUO1032,1415 -19-26MAY99-3/14

Specifications

Item	Measurement	Specification
Gear A-R	Speed	3.24 km/h (2.01 mph)
Gear B-R	Speed	7.48 km/h (4.65 mph)
Gear C-R	Speed	20.57 km/h (12.78 mph)
Rear Tires—16.9-28 R1		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.34 km/h (0.21 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.50 km/h (0.31 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.67 km/h (0.41 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.81 km/h (0.51 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.18 km/h (0.51 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.60 km/h (1.00 mph)
Gear A-1	Speed	2.08 km/h (1.29 mph)
Gear A-2	Speed	3.00 km/h (1.86 mph)
Gear A-3	Speed	4.10 km/h (2.55 mph)
Gear B-1	Speed	4.81 km/h (2.99 mph)
Gear B-2	Speed	6.94 km/h (4.32 mph)
Gear B-3	Speed	9.47 km/h (5.89 mph)
Gear C-1	Speed	13.21 km/h (8.21 mph)
Gear C-2	Speed	19.08 km/h (11.85 mph)
Gear C-3	Speed	26.00 km/h (16.17 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.57 km/h (0.35 mph)

Continued on next page

AG,OUO1032,1415 -19-26MAY99-4/14

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.37 km/h (0.85 mph)
Gear A-R	Speed	3.50 km/h (2.17 mph)
Gear B-R	Speed	8.07 km/h (5.02 mph)
Gear C-R	Speed	22.20 km/h (13.80 mph)
Rear Tires—16.9-30 R1		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.35 km/h (0.22 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.52 km/h (0.32 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.70 km/h (0.43 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.84 km/h (0.53 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.22 km/h (0.76 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.66 km/h (1.04 mph)
Gear A-1	Speed	2.16 km/h (1.34 mph)
Gear A-2	Speed	3.12 km/h (1.94 mph)
Gear A-3	Speed	4.26 km/h (2.64 mph)
Gear B-1	Speed	5.00 km/h (3.11 mph)
Gear B-2	Speed	7.21 km/h (4.48 mph)
Gear B-3	Speed	9.83 km/h (6.12 mph)
Gear C-1	Speed	13.72 km/h (8.52 mph)
Gear C-2	Speed	19.81 km/h (12.31 mph)
Gear C-3	Speed	27.01 km/h (16.79 mph)

Continued on next page

AG,OUO1032,1415 -19-26MAY99-5/14

Specifications

Item	Measurement	Specification
Gear Creeper C-R—Optional Standard Creeper	Speed	0.59 km/h (0.37 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.43 km/h (0.89 mph)
Gear A-R	Speed	3.63 km/h (2.26 mph)
Gear B-R	Speed	8.39 km/h (5.21 mph)
Gear C-R	Speed	23.05 km/h (14.33 mph)
Rear Tires—18.4-30 R1		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.37 km/h (0.23 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.54 km/h (0.34 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.73 km/h (0.45 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.90 km/h (0.56 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.30 km/h (0.81 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.77 km/h (1.10 mph)
Gear A-1	Speed	2.27 km/h (1.41 mph)
Gear A-2	Speed	3.28 km/h (2.03 mph)
Gear A-3	Speed	4.47 km/h (2.78 mph)
Gear B-1	Speed	5.25 km/h (3.27 mph)
Gear B-2	Speed	7.58 km/h (4.71 mph)
Gear B-3	Speed	10.34 km/h (6.43 mph)
Gear C-1	Speed	14.42 km/h (9.12 mph)

Continued on next page

AG.OUO1032,1415 -19-26MAY99-6/14

Specifications

Item	Measurement	Specification
Gear C-2	Speed	20.83 km/h (12.94 mph)
Gear C-3	Speed	28.40 km/h (17.65 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.62 km/h (0.38 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.52 km/h (0.94 mph)
Gear A-R	Speed	3.82 km/h (2.37 mph)
Gear B-R	Speed	8.81 km/h (5.48 mph)
Gear C-R	Speed	24.24 km/h (15.06 mph)
Rear Tires—15.5-38 R1		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.38 km/h (0.23 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.55 km/h (0.35 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.75 km/h (0.46 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.94 km/h (0.59 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.36 km/h (0.84 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.85 km/h (1.15 mph)
Gear A-1	Speed	2.31 km/h (1.44 mph)
Gear A-2	Speed	3.35 km/h (2.07 mph)
Gear A-3	Speed	4.55 km/h (2.83 mph)
Gear B-1	Speed	5.35 km/h (3.32 mph)
Gear B-2	Speed	7.72 km/h (4.80 mph)

Continued on next page

AG.OUO1032.1415 -19-26MAY99-7/14

Specifications

Item	Measurement	Specification
Gear B-3	Speed	10.52 km/h (6.54 mph)
Gear C-1	Speed	14.67 km/h (9.12 mph)
Gear C-2	Speed	21.19 km/h (13.17 mph)
Gear C-3	Speed	28.90 km/h (17.96 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.63 km/h (0.39 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.58 km/h (0.98 mph)
Gear A-R	Speed	3.89 km/h (2.42 mph)
Gear B-R	Speed	8.97 km/h (5.58 mph)
Gear C-R	Speed	24.67 km/h (15.33 mph)
Rear Tires—16.9-24 R1		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.32 km/h (0.19 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.47 km/h (0.29 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.63 km/h (0.39 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.09 km/h (0.67 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.48 km/h (0.92 mph)
Gear A-1	Speed	1.95 km/h (1.22 mph)
Gear A-2	Speed	2.81 km/h (1.75 mph)
Gear A-3	Speed	3.84 km/h (2.39 mph)

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AG,OUO1032,1415 -19-26MAY99-8/14

Specifications

Item	Measurement	Specification
Gear B-1	Speed	4.51 km/h (2.80 mph)
Gear B-2	Speed	6.51 km/h (4.04 mph)
Gear B-3	Speed	8.88 km/h (5.52 mph)
Gear C-1	Speed	12.38 km/h (7.69 mph)
Gear C-2	Speed	17.88 km/h (11.11 mph)
Gear C-3	Speed	24.38 km/h (15.15 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.53 km/h (0.33 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.27 km/h (0.78 mph)
Gear A-R	Speed	3.28 km/h (2.04 mph)
Gear B-R	Speed	7.47 km/h (4.70 mph)
Gear C-R	Speed	20.81 km/h (12.93 mph)
Rear Tires—16.9-24 R3		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.31 km/h (0.19 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.46 km/h (0.29 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.62 km/h (0.38 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.09 km/h (0.67 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.46 km/h (0.91 mph)
Gear A-1	Speed	1.92 km/h (1.19 mph)

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AG.OUO1032.1415 -19-26MAY99-9/14

Specifications

Item	Measurement	Specification
Gear A-2	Speed	2.72 km/h (1.72 mph)
Gear A-3	Speed	3.78 km/h (2.35 mph)
Gear B-1	Speed	4.44 km/h (2.76 mph)
Gear B-2	Speed	6.40 km/h (3.98 mph)
Gear B-3	Speed	8.73 km/h (5.43 mph)
Gear C-1	Speed	12.17 km/h (7.57 mph)
Gear C-2	Speed	17.58 km/h (10.92 mph)
Gear C-3	Speed	23.97 km/h (14.90 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.52 km/h (0.32 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.27 km/h (0.78 mph)
Gear A-R	Speed	3.22 km/h (2.00 mph)
Gear B-R	Speed	7.44 km/h (4.63 mph)
Gear C-R	Speed	20.45 km/h (12.72 mph)
Rear Tires—16.9-24 R4		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.31 km/h (0.19 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.46 km/h (0.29 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.62 km/h (0.38 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.09 km/h (0.67 mph)

Continued on next page

AG,OUO1032,1415 -19-26MAY99-10/14

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.46 km/h (0.91 mph)
Gear A-1	Speed	1.92 km/h (1.19 mph)
Gear A-2	Speed	2.72 km/h (1.72 mph)
Gear A-3	Speed	3.78 km/h (2.35 mph)
Gear B-1	Speed	4.44 km/h (2.76 mph)
Gear B-2	Speed	6.40 km/h (3.98 mph)
Gear B-3	Speed	8.73 km/h (5.43 mph)
Gear C-1	Speed	12.17 km/h (7.57 mph)
Gear C-2	Speed	17.58 km/h (10.92 mph)
Gear C-3	Speed	23.97 km/h (14.90 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.52 km/h (0.32 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.27 km/h (0.78 mph)
Gear A-R	Speed	3.22 km/h (2.00 mph)
Gear B-R	Speed	7.44 km/h (4.63 mph)
Gear C-R	Speed	20.45 km/h (12.72 mph)
Rear Tires—21.5L-16.1 R3		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.25 km/h (0.15 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.36 km/h (0.23 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.49 km/h (0.30 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.62 km/h (0.39 mph)

Continued on next page

AG.OUO1032,1415 -19-26MAY99-11/14

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	0.90 km/h (0.56 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.23 km/h (0.77 mph)
Gear A-1	Speed	1.52 km/h (0.95 mph)
Gear A-2	Speed	2.20 km/h (1.36 mph)
Gear A-3	Speed	3.00 km/h (1.86 mph)
Gear B-1	Speed	3.52 km/h (2.19 mph)
Gear B-2	Speed	5.08 km/h (3.16 mph)
Gear B-3	Speed	6.93 km/h (4.31 mph)
Gear C-1	Speed	9.66 km/h (6.00 mph)
Gear C-2	Speed	13.95 km/h (8.67 mph)
Gear C-3	Speed	19.02 km/h (11.82 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.42 km/h (0.26 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.06 km/h (0.66 mph)
Gear A-R	Speed	2.56 km/h (1.59 mph)
Gear B-R	Speed	5.90 km/h (3.67 mph)
Gear C-R	Speed	16.24 km/h (10.09 mph)
Rear Tires—22.5LL-16.1 Turf Special		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.25 km/h (0.15 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.36 km/h (0.23 mph)
Gear Creeper C-3—Optional Standard Creeper	Speed	0.49 km/h (0.30 mph)

Continued on next page

AG.OUO1032,1415 -19-26MAY99-12/14

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.62 km/h (0.39 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	0.90 km/h (0.56 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.23 km/h (0.77 mph)
Gear A-1	Speed	1.52 km/h (0.95 mph)
Gear A-2	Speed	2.20 km/h (1.36 mph)
Gear A-3	Speed	3.00 km/h (1.86 mph)
Gear B-1	Speed	3.52 km/h (2.19 mph)
Gear B-2	Speed	5.08 km/h (3.16 mph)
Gear B-3	Speed	6.93 km/h (4.31 mph)
Gear C-1	Speed	9.66 km/h (6.00 mph)
Gear C-2	Speed	13.95 km/h (8.67 mph)
Gear C-3	Speed	19.02 km/h (11.82 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.42 km/h (0.26 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.06 km/h (0.66 mph)
Gear A-R	Speed	2.56 km/h (1.59 mph)
Gear B-R	Speed	5.90 km/h (3.67 mph)
Gear C-R	Speed	16.24 km/h (10.09 mph)
Rear Tires—19.5L-24 R4		
Gear Creeper C-1—Optional Standard Creeper	Speed	0.31 km/h (0.19 mph)
Gear Creeper C-2—Optional Standard Creeper	Speed	0.46 km/h (0.29 mph)

Continued on next page

AG,OUO1032,1415 -19-26MAY99-13/14

Specifications

Item	Measurement	Specification
Gear Creeper C-3—Optional Standard Creeper	Speed	0.62 km/h (0.38 mph)
Gear High Speed Creeper C-1— Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-2— Optional High Speed Creeper	Speed	1.09 km/h (0.67 mph)
Gear High Speed Creeper C-3— Optional High Speed Creeper	Speed	1.46 km/h (0.91 mph)
Gear A-1	Speed	1.92 km/h (1.19 mph)
Gear A-2	Speed	2.72 km/h (1.72 mph)
Gear A-3	Speed	3.78 km/h (2.35 mph)
Gear B-1	Speed	4.44 km/h (2.76 mph)
Gear B-2	Speed	6.40 km/h (3.98 mph)
Gear B-3	Speed	8.73 km/h (5.43 mph)
Gear C-1	Speed	12.17 km/h (7.57 mph)
Gear C-2	Speed	17.58 km/h (10.92 mph)
Gear C-3	Speed	23.97 km/h (14.90 mph)
Gear Creeper C-R—Optional Standard Creeper	Speed	0.52 km/h (0.32 mph)
Gear High Speed Creeper C-R— Optional High Speed Creeper	Speed	1.27 km/h (0.78 mph)
Gear A-R	Speed	3.22 km/h (2.00 mph)
Gear B-R	Speed	7.44 km/h (4.63 mph)
Gear C-R	Speed	20.45 km/h (12.72 mph)

AG,OUO1032,1415 -19-26MAY99-14/14

Ground Speed Estimates—PowrReverser™ Transmission

NOTE: Ground Speed—km/h (mph) at 2400 rpm engine speed.

Item	Measurement	Specification
Rear Tires—14.9-28 PR1		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.24 km/h (0.15 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.28 km/h (0.18 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.31 km/h (0.19 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.35 km/h (0.22 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.39 km/h (0.25 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.46 km/h (0.28 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.54 km/h (0.34 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.62 km/h (0.39 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.54 km/h (0.34 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.63 km/h (0.39 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.68 km/h (0.42 mph)

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.78 km/h (0.79 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.88 km/h (0.54 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	1.01 km/h (0.63 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.23 km/h (0.75 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.37 km/h (0.88 mph)
Gear A-1 Forward	Speed	1.38 km/h (0.86 mph)
Gear A-1 Reverse	Speed	1.60 km/h (0.99 mph)
Gear A-2 Forward	Speed	1.73 km/h (1.07 mph)
Gear A-2 Reverse	Speed	2.00 km/h (1.24 mph)
Gear A-3 Forward	Speed	2.23 km/h (1.39 mph)
Gear A-3 Reverse	Speed	2.58 km/h (1.61 mph)
Gear A-4 Forward	Speed	2.66 km/h (1.65 mph)
Gear A-4 Reverse	Speed	3.07 km/h (1.91 mph)
Gear B-1 Forward	Speed	4.01 km/h (2.49 mph)
Gear B-1 Reverse	Speed	4.63 km/h (2.88 mph)
Gear B-2 Forward	Speed	5.01 km/h (3.11 mph)
Gear B-2 Reverse	Speed	5.79 km/h (3.60 mph)
Gear B-3 Forward	Speed	6.48 km/h (4.03 mph)
Gear B-3 Reverse	Speed	7.49 km/h (4.65 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-2/28

Specifications

Item	Measurement	Specification
Gear B-4 Forward	Speed	8.84 km/h (5.49 mph)
Gear B-4 Reverse	Speed	10.22 km/h (6.35 mph)
Gear C-1 Forward	Speed	11.33 km/h (7.04 mph)
Gear C-1 Reverse	Speed	12.10 km/h (8.14 mph)
Gear C-2 Forward	Speed	14.16 km/h (8.80 mph)
Gear C-2 Reverse	Speed	16.37 km/h (10.17 mph)
Gear C-3 Forward	Speed	18.32 km/h (11.38 mph)
Gear C-3 Reverse	Speed	21.18 km/h (13.16 mph)
Gear C-4 Forward	Speed	24.98 km/h (15.52 mph)
Gear C-4 Reverse	Speed	28.88 km/h (17.95 mph)

Rear Tires 13.6-28 PR1

Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.22 km/h (0.14 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.25 km/h (0.16 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.27 km/h (0.17 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.31 km/h (0.20 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.35 km/h (0.22 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.41 km/h (0.25 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.48 km/h (0.30 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.55 km/h (0.34 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-3/28

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.52 km/h (0.33 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.61 km/h (0.37 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.65 km/h (0.40 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.84 km/h (0.52 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	0.97 km/h (0.60 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.18 km/h (0.72 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.32 km/h (0.84 mph)
Gear A-1 Forward	Speed	1.33 km/h (0.82 mph)
Gear A-1 Reverse	Speed	1.53 km/h (0.95 mph)
Gear A-2 Forward	Speed	1.66 km/h (1.03 mph)
Gear A-2 Reverse	Speed	1.92 km/h (1.19 mph)
Gear A-3 Forward	Speed	2.14 km/h (1.33 mph)
Gear A-3 Reverse	Speed	2.48 km/h (1.54 mph)
Gear A-4 Forward	Speed	2.55 km/h (1.58 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-4/28

Specifications

Item	Measurement	Specification
Gear A-4 Reverse	Speed	2.95 km/h (1.83 mph)
Gear B-1 Forward	Speed	3.84 km/h (2.39 mph)
Gear B-1 Reverse	Speed	4.44 km/h (2.76 mph)
Gear B-2 Forward	Speed	4.81 km/h (2.99 mph)
Gear B-2 Reverse	Speed	5.56 km/h (3.45 mph)
Gear B-3 Forward	Speed	6.22 km/h (3.86 mph)
Gear B-3 Reverse	Speed	7.19 km/h (4.47 mph)
Gear B-4 Forward	Speed	8.48 km/h (5.27 mph)
Gear B-4 Reverse	Speed	9.80 km/h (6.09 mph)
Gear C-1 Forward	Speed	10.86 km/h (6.75 mph)
Gear C-1 Reverse	Speed	12.56 km/h (7.81 mph)
Gear C-2 Forward	Speed	13.58 km/h (8.44 mph)
Gear C-2 Reverse	Speed	15.70 km/h (9.76 mph)
Gear C-3 Forward	Speed	17.57 km/h (10.92 mph)
Gear C-3 Reverse	Speed	20.31 km/h (12.62 mph)
Gear C-4 Forward	Speed	23.95 km/h (14.89 mph)
Gear C-4 Reverse	Speed	27.70 km/h (17.21 mph)
Rear Tires 16.9-28 PR1		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.23 km/h (0.15 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.27 km/h (0.17 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.29 km/h (0.18 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.34 km/h (0.21 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-5/28

Specifications

Item	Measurement	Specification
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.38 km/h (0.24 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.44 km/h (0.27 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.52 km/h (0.32 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.60 km/h (0.37 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.56 km/h (0.35 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.66 km/h (0.41 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.71 km/h (0.43 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.81 km/h (0.51 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.91 km/h (0.56 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	1.05 km/h (0.66 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.28 km/h (0.78 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.42 km/h (0.92 mph)
Gear A-1 Forward	Speed	1.43 km/h (0.89 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-6/28

Specifications

Item	Measurement	Specification
Gear A-1 Reverse	Speed	1.65 km/h (1.03 mph)
Gear A-2 Forward	Speed	1.79 km/h (1.11 mph)
Gear A-2 Reverse	Speed	2.07 km/h (1.28 mph)
Gear A-3 Forward	Speed	2.1 km/h (1.44 mph)
Gear A-3 Reverse	Speed	2.66 km/h (1.67 mph)
Gear A-4 Forward	Speed	2.75 km/h (1.71 mph)
Gear A-4 Reverse	Speed	3.18 km/h (1.98 mph)
Gear B-1 Forward	Speed	4.15 km/h (2.68 mph)
Gear B-1 Reverse	Speed	4.80 km/h (2.98 mph)
Gear B-2 Forward	Speed	5.19 km/h (3.22 mph)
Gear B-2 Reverse	Speed	5.91 km/h (3.73 mph)
Gear B-3 Forward	Speed	6.71 km/h (4.17 mph)
Gear B-3 Reverse	Speed	7.76 km/h (4.82 mph)
Gear B-4 Forward	Speed	9.15 km/h (5.69 mph)
Gear B-4 Reverse	Speed	10.58 km/h (6.57 mph)
Gear C-1 Forward	Speed	11.72 km/h (7.29 mph)
Gear C-1 Reverse	Speed	1356 km/h (8.43. mph)
Gear C-2 Forward	Speed	14.65 km/h (9.11 mph)
Gear C-2 Reverse	Speed	16.95 km/h (10.53 mph)
Gear C-3 Forward	Speed	18.96 km/h (11.78 mph)
Gear C-3 Reverse	Speed	21.92 km/h (13.62 mph)
Gear C-4 Forward	Speed	25.85 km/h (16.07 mph)
Gear C-4 Reverse	Speed	29.89 km/h (18.58 mph)

Continued on next page

AG.OUO1032,1418 -19-08JUN99-7/28

Specifications

Item	Measurement	Specification
Rear Tires 16.9-30 PR1		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.24 km/h (0.15 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.28 km/h (0.18 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.30 km/h (0.19 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.35 km/h (0.22 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.39 km/h (0.24 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.45 km/h (0.28 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.54 km/h (0.33 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.62 km/h (0.39 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.58 km/h (0.37 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.68 km/h (0.42 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.73 km/h (0.45 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.84 km/h (0.53 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.95 km/h (0.58 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-8/28

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	1.09 km/h (0.68 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.33 km/h (0.81 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.48 km/h (0.95 mph)
Gear A-1 Forward	Speed	1.49 km/h (0.92 mph)
Gear A-1 Reverse	Speed	1.72 km/h (1.07 mph)
Gear A-2 Forward	Speed	1.86 km/h (1.15 mph)
Gear A-2 Reverse	Speed	2.15 km/h (1.33 mph)
Gear A-3 Forward	Speed	2.20 km/h (1.49 mph)
Gear A-3 Reverse	Speed	2.78 km/h (1.73 mph)
Gear A-4 Forward	Speed	2.86 km/h (1.78 mph)
Gear A-4 Reverse	Speed	3.32 km/h (2.21 mph)
Gear B-1 Forward	Speed	4.31 km/h (2.68 mph)
Gear B-1 Reverse	Speed	4.98 km/h (3.10 mph)
Gear B-2 Forward	Speed	5.39 km/h (3.35 mph)
Gear B-2 Reverse	Speed	6.23 km/h (3.87 mph)
Gear B-3 Forward	Speed	6.97 km/h (4.33 mph)
Gear B-3 Reverse	Speed	8.06 km/h (5.01 mph)
Gear B-4 Forward	Speed	9.50 km/h (5.91 mph)
Gear B-4 Reverse	Speed	10.99 km/h (6.83 mph)
Gear C-1 Forward	Speed	12.18 km/h (7.57 mph)
Gear C-1 Reverse	Speed	14.08 km/h (8.75 mph)

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AG.OUO1032.1418 -19-08JUN99-9/28

Specifications

Item	Measurement	Specification
Gear C-2 Forward	Speed	15.22 km/h (9.46 mph)
Gear C-2 Reverse	Speed	17.60 km/h (10.94 mph)
Gear C-3 Forward	Speed	19.69 km/h (12.24 mph)
Gear C-3 Reverse	Speed	22.77 km/h (14.15 mph)
Gear C-4 Forward	Speed	26.85 km/h (16.69 mph)
Gear C-4 Reverse	Speed	31.05 km/h (19.30 mph)
Rear Tires 18.4-30 PR1		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.26 km/h (0.16 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.30 km/h (0.18 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.32 km/h (0.20 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.37 km/h (0.23 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.41 km/h (0.26 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.48 km/h (0.30 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.56 km/h (0.35 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.65 km/h (0.41 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.62 km/h (0.39 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.73 km/h (0.45 mph)

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AG,OUO1032,1418 -19-08JUN99-10/28

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.78 km/h (0.48 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.90 km/h (0.56 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	1.01 km/h (0.62 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	1.16 km/h (0.73 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.42 km/h (0.86 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.58 km/h (1.01 mph)
Gear A-1 Forward	Speed	1.56 km/h (0.97 mph)
Gear A-1 Reverse	Speed	1.81 km/h (1.12 mph)
Gear A-2 Forward	Speed	1.95 km/h (1.21 mph)
Gear A-2 Reverse	Speed	2.26 km/h (1.40 mph)
Gear A-3 Forward	Speed	2.51 km/h (1.57 mph)
Gear A-3 Reverse	Speed	2.92 km/h (1.81 mph)
Gear A-4 Forward	Speed	3.01 km/h (1.87 mph)
Gear A-4 Reverse	Speed	3.47 km/h (2.44 mph)
Gear B-1 Forward	Speed	4.53 km/h (2.82 mph)
Gear B-1 Reverse	Speed	5.23 km/h (3.25 mph)
Gear B-2 Forward	Speed	5.66 km/h (3.52 mph)
Gear B-2 Reverse	Speed	6.55 km/h (4.07 mph)

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AG.OUO1032,1418 -19-08JUN99-11/28

Specifications

Item	Measurement	Specification
Gear B-3 Forward	Speed	7.32 km/h (4.55 mph)
Gear B-3 Reverse	Speed	8.47 km/h (5.26 mph)
Gear B-4 Forward	Speed	10.00 km/h (6.32 mph)
Gear B-4 Reverse	Speed	11.55 km/h (7.18 mph)
Gear C-1 Forward	Speed	12.80 km/h (7.96 mph)
Gear C-1 Reverse	Speed	14.80 km/h (9.20 mph)
Gear C-2 Forward	Speed	16.00 km/h (9.94 mph)
Gear C-2 Reverse	Speed	18.50 km/h (11.50 mph)
Gear C-3 Forward	Speed	20.70 km/h (12.86 mph)
Gear C-3 Reverse	Speed	23.93 km/h (14.87 mph)
Gear C-4 Forward	Speed	28.23 km/h (17.54 mph)
Gear C-4 Reverse	Speed	32.64 km/h (20.28 mph)

Rear Tires 15.5-38 PR1

Gear C-1 Forward—Optional Standard Creeper	Speed	0.26 km/h (0.16 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.30 km/h (0.19 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.33 km/h (0.20 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.38 km/h (0.23 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.42 km/h (0.26 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.49 km/h (0.30 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.57 km/h (0.36 mph)

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AG,OUO1032.1418 -19-08JUN99-12/28

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.78 km/h (0.48 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.90 km/h (0.56 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	1.01 km/h (0.62 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	1.16 km/h (0.73 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.42 km/h (0.86 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.58 km/h (1.01 mph)
Gear A-1 Forward	Speed	1.56 km/h (0.97 mph)
Gear A-1 Reverse	Speed	1.81 km/h (1.12 mph)
Gear A-2 Forward	Speed	1.95 km/h (1.21 mph)
Gear A-2 Reverse	Speed	2.26 km/h (1.40 mph)
Gear A-3 Forward	Speed	2.51 km/h (1.57 mph)
Gear A-3 Reverse	Speed	2.92 km/h (1.81 mph)
Gear A-4 Forward	Speed	3.01 km/h (1.87 mph)
Gear A-4 Reverse	Speed	3.47 km/h (2.44 mph)
Gear B-1 Forward	Speed	4.53 km/h (2.82 mph)
Gear B-1 Reverse	Speed	5.23 km/h (3.25 mph)
Gear B-2 Forward	Speed	5.66 km/h (3.52 mph)
Gear B-2 Reverse	Speed	6.55 km/h (4.07 mph)

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AG.OUO1032,1418 -19-08JUN99-11/28

Specifications

Item	Measurement	Specification
Gear B-3 Forward	Speed	7.32 km/h (4.55 mph)
Gear B-3 Reverse	Speed	8.47 km/h (5.26 mph)
Gear B-4 Forward	Speed	10.00 km/h (6.32 mph)
Gear B-4 Reverse	Speed	11.55 km/h (7.18 mph)
Gear C-1 Forward	Speed	12.80 km/h (7.96 mph)
Gear C-1 Reverse	Speed	14.80 km/h (9.20 mph)
Gear C-2 Forward	Speed	16.00 km/h (9.94 mph)
Gear C-2 Reverse	Speed	18.50 km/h (11.50 mph)
Gear C-3 Forward	Speed	20.70 km/h (12.86 mph)
Gear C-3 Reverse	Speed	23.93 km/h (14.87 mph)
Gear C-4 Forward	Speed	28.23 km/h (17.54 mph)
Gear C-4 Reverse	Speed	32.64 km/h (20.28 mph)

Rear Tires 15.5-38 PR1

Gear C-1 Forward—Optional Standard Creeper	Speed	0.26 km/h (0.16 mph)
Gear Creeper C-1 Reverse—Optional Standard Creeper	Speed	0.30 km/h (0.19 mph)
Gear Creeper C-2 Forward—Optional Standard Creeper	Speed	0.33 km/h (0.20 mph)
Gear Creeper C-2 Reverse—Optional Standard Creeper	Speed	0.38 km/h (0.23 mph)
Gear Creeper C-3 Forward—Optional Standard Creeper	Speed	0.42 km/h (0.26 mph)
Gear Creeper C-3 Reverse—Optional Standard Creeper	Speed	0.49 km/h (0.30 mph)
Gear Creeper C-4 Forward—Optional Standard Creeper	Speed	0.57 km/h (0.36 mph)

Continued on next page

AG.OUO1032,1418 -19-08JUN99-12/28

Specifications

Item	Measurement	Specification
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.66 km/h (0.42 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.65 km/h (0.41 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.76 km/h (0.47 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.82 km/h (0.50 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.94 km/h (0.59 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	1.06 km/h (0.65 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	1.21 km/h (0.76 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.48 km/h (0.90 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.64 km/h (1.06 mph)
Gear A-1 Forward	Speed	1.59 km/h (0.99 mph)
Gear A-1 Reverse	Speed	1.84 km/h (1.14 mph)
Gear A-2 Forward	Speed	1.99 km/h (1.23 mph)
Gear A-2 Reverse	Speed	2.30 km/h (1.43 mph)
Gear A-3 Forward	Speed	2.57 km/h (1.60 mph)
Gear A-3 Reverse	Speed	2.97 km/h (1.85 mph)

Continued on next page

AG.OUO1032,1418 -19-08JUN99-13/28

Specifications

Item	Measurement	Specification
Gear A-4 Forward	Speed	3.06 km/h (1.90 mph)
Gear A-4 Reverse	Speed	3.54 km/h (2.20 mph)
Gear B-1 Forward	Speed	4.61 km/h (2.87 mph)
Gear B-1 Reverse	Speed	5.32 km/h (3.31 mph)
Gear B-2 Forward	Speed	5.76 km/h (3.58 mph)
Gear B-2 Reverse	Speed	6.66 km/h (4.14 mph)
Gear B-3 Forward	Speed	7.45 km/h (4.63 mph)
Gear B-3 Reverse	Speed	8.62 km/h (5.36 mph)
Gear B-4 Forward	Speed	10.17 km/h (6.32 mph)
Gear B-4 Reverse	Speed	11.75 km/h (7.30 mph)
Gear C-1 Forward	Speed	13.03 km/h (8.10 mph)
Gear C-1 Reverse	Speed	15.06 km/h (9.36 mph)
Gear C-2 Forward	Speed	16.28 km/h (10.12 mph)
Gear C-2 Reverse	Speed	18.83 km/h (11.70 mph)
Gear C-3 Forward	Speed	21.07 km/h (13.09 mph)
Gear C-3 Reverse	Speed	24.36 km/h (15.14 mph)
Gear C-4 Forward	Speed	28.73 km/h (17.85 mph)
Gear C-4 Reverse	Speed	33.21 km/h (20.64 mph)
Rear Tires 16.9-24 PR1		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.22 km/h (0.14 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.25 km/h (0.16 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.28 km/h (0.17 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-14/28

Specifications

Item	Measurement	Specification
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.32 km/h (0.20 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.36 km/h (0.22 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.41 km/h (0.26 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.48 km/h (0.30 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.56 km/h (0.35 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.52 km/h (0.33 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.61 km/h (0.37 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.65 km/h (0.40 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.84 km/h (0.52 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	0.97 km/h (0.60 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.18 km/h (0.72 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.32 km/h (0.84 mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-15/28

Specifications

Item	Measurement	Specification
Gear A-1 Forward	Speed	1.34 km/h (0.83 mph)
Gear A-1 Reverse	Speed	1.55 km/h (0.96 mph)
Gear A-2 Forward	Speed	1.68 km/h (1.04 mph)
Gear A-2 Reverse	Speed	1.94 km/h (1.20 mph)
Gear A-3 Forward	Speed	2.17 km/h (1.35 mph)
Gear A-3 Reverse	Speed	2.51 km/h (1.56 mph)
Gear A-4 Forward	Speed	2.58 km/h (1.60 mph)
Gear A-4 Reverse	Speed	2.98 km/h (1.85 mph)
Gear B-1 Forward	Speed	3.89 km/h (2.42 mph)
Gear B-1 Reverse	Speed	4.50 km/h (2.79 mph)
Gear B-2 Forward	Speed	4.86 km/h (3.02 mph)
Gear B-2 Reverse	Speed	5.62 km/h (3.49 mph)
Gear B-3 Forward	Speed	6.29 km/h (3.91 mph)
Gear B-3 Reverse	Speed	7.27 km/h (4.52 mph)
Gear B-4 Forward	Speed	8.57 km/h (5.33 mph)
Gear B-4 Reverse	Speed	9.91 km/h (6.16 mph)
Gear C-1 Forward	Speed	10.99 km/h (6.83 mph)
Gear C-1 Reverse	Speed	12.70 km/h (7.90 mph)
Gear C-2 Forward	Speed	13.73 km/h (8.54 mph)
Gear C-2 Reverse	Speed	15.88 km/h (9.87 mph)
Gear C-3 Forward	Speed	17.77 km/h (11.04 mph)
Gear C-3 Reverse	Speed	20.54 km/h (12.77 mph)
Gear C-4 Forward	Speed	24.23 km/h (15.06 mph)
Gear C-4 Reverse	Speed	28.02 km/h (17.41 mph)

Continued on next page

AG.OUO1032,1418 -19-08JUN99-16/28

Specifications

Item	Measurement	Specification
Rear Tires 16.9-24 PR3		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.22 km/h (0.14 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.25 km/h (0.16 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.27 km/h (0.17 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.31 km/h (0.19 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.35 km/h (0.22 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.40 km/h (0.25 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.48 km/h (0.30 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.55 km/h (0.34 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.52 km/h (0.33 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.61 km/h (0.37 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.65 km/h (0.40 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.75 km/h (0.47 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.84 km/h (0.52 mph)

Continued on next page

AG.OUO1032,1418 -19-08JUN99-17/28

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	0.97 km/h (0.60 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	1.18 km/h (0.72 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.32 km/h (0.84 mph)
Gear A-1 Forward	Speed	1.32 km/h (0.82 mph)
Gear A-1 Reverse	Speed	1.52 km/h (0.95 mph)
Gear A-2 Forward	Speed	1.65 km/h (1.02 mph)
Gear A-2 Reverse	Speed	1.91 km/h (1.18 mph)
Gear A-3 Forward	Speed	2.13 km/h (1.32 mph)
Gear A-3 Reverse	Speed	2.46 km/h (1.53 mph)
Gear A-4 Forward	Speed	2.54 km/h (1.58 mph)
Gear A-4 Reverse	Speed	2.93 km/h (1.82 mph)
Gear B-1 Forward	Speed	3.82 km/h (2.38 mph)
Gear B-1 Reverse	Speed	4.42 km/h (2.75 mph)
Gear B-2 Forward	Speed	4.78 km/h (2.97 mph)
Gear B-2 Reverse	Speed	5.53 km/h (3.43 mph)
Gear B-3 Forward	Speed	6.18 km/h (3.84 mph)
Gear B-3 Reverse	Speed	7.15 km/h (4.44 mph)
Gear B-4 Forward	Speed	8.43 km/h (5.24 mph)
Gear B-4 Reverse	Speed	9.75 km/h (6.06 mph)
Gear C-1 Forward	Speed	10.81 km/h (6.72 mph)
Gear C-1 Reverse	Speed	12.50 km/h (7.77mph)

Continued on next page

AG,OUO1032,1418 -19-08JUN99-18/28

Specifications

Item	Measurement	Specification
Gear C-2 Forward	Speed	13.51 km/h (8.40 mph)
Gear C-2 Reverse	Speed	15.62 km/h (9.71 mph)
Gear C-3 Forward	Speed	17.47 km/h (10.86 mph)
Gear C-3 Reverse	Speed	20.21 km/h (12.56 mph)
Gear C-4 Forward	Speed	23.83 km/h (14.81 mph)
Gear C-4 Reverse	Speed	27.55 km/h (17.12 mph)
Rear Tires 21.5L-16.1 PR3		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.17 km/h (0.11 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.20 km/h (0.12 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.21 km/h (0.13 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.25 km/h (0.15 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.28 km/h (0.17 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.32 km/h (0.20 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.38 km/h (0.24 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.44 km/h (0.27 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.43 km/h (0.27 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.50 km/h (0.31 mph)

Continued on next page

AG.OUO1032,1418 -19-08JUN99-19/28

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.54 km/h (0.34 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.62 km/h (0.39 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.70 km/h (0.43 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	0.81 km/h (0.50 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	0.98 km/h (0.60 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.10 km/h (0.70 mph)
Gear A-1 Forward	Speed	1.05 km/h (0.65 mph)
Gear A-1 Reverse	Speed	1.21 km/h (0.75 mph)
Gear A-2 Forward	Speed	1.31 km/h (0.81 mph)
Gear A-2 Reverse	Speed	1.51 km/h (0.94 mph)
Gear A-3 Forward	Speed	1.69 km/h (1.05 mph)
Gear A-3 Reverse	Speed	1.96 km/h (1.22 mph)
Gear A-4 Forward	Speed	2.01 km/h (1.25 mph)
Gear A-4 Reverse	Speed	2.33 km/h (1.47 mph)
Gear B-1 Forward	Speed	3.03 km/h (1.89 mph)
Gear B-1 Reverse	Speed	3.51 km/h (2.18 mph)
Gear B-2 Forward	Speed	3.79 km/h (2.36 mph)
Gear B-2 Reverse	Speed	4.39 km/h (2.28 mph)

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AG,OUO1032,1418 -19-08JUN99-20/28

Specifications

Item	Measurement	Specification
Gear B-3 Forward	Speed	4.91 km/h (3.05 mph)
Gear B-3 Reverse	Speed	5.67 km/h (3.53 mph)
Gear B-4 Forward	Speed	6.69 km/h (4.16 mph)
Gear B-4 Reverse	Speed	7.74 km/h (4.81 mph)
Gear C-1 Forward	Speed	8.58 km/h (5.33 mph)
Gear C-1 Reverse	Speed	9.91 km/h (6.16 mph)
Gear C-2 Forward	Speed	10.72 km/h (6.66 mph)
Gear C-2 Reverse	Speed	12.39 km/h (7.70 mph)
Gear C-3 Forward	Speed	13.87 km/h (8.62 mph)
Gear C-3 Reverse	Speed	16.03 km/h (9.96 mph)
Gear C-4 Forward	Speed	18.91 km/h (11.75 mph)
Gear C-4 Reverse	Speed	21.86 km/h (13.56 mph)
Rear Tires 22.5LL-16.1 Turf Special		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.17 km/h (0.11 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.20 km/h (0.12 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.21 km/h (0.13 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.25 km/h (0.15 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.28 km/h (0.17 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.32 km/h (0.20 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.38 km/h (0.24 mph)

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AG.OUO1032.1418 -19-08JUN99-21/28

Specifications

Item	Measurement	Specification
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.44 km/h (0.27 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.43 km/h (0.27 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.50 km/h (0.31 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.54 km/h (0.34 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.62 km/h (0.39 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.70 km/h (0.43 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	0.81 km/h (0.50 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	0.98 km/h (0.60 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.10 km/h (0.70 mph)
Gear A-1 Forward	Speed	1.05 km/h (0.65 mph)
Gear A-1 Reverse	Speed	1.21 km/h (0.75 mph)
Gear A-2 Forward	Speed	1.31 km/h (0.81 mph)
Gear A-2 Reverse	Speed	1.51 km/h (0.94 mph)
Gear A-3 Forward	Speed	1.69 km/h (1.05 mph)
Gear A-3 Reverse	Speed	1.96 km/h (1.22 mph)

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AG.OUO1032,1418 -19-08JUN99-22/28

Specifications

Item	Measurement	Specification
Gear A-4 Forward	Speed	2.01 km/h (1.25 mph)
Gear A-4 Reverse	Speed	2.33 km/h (1.47 mph)
Gear B-1 Forward	Speed	3.03 km/h (1.89 mph)
Gear B-1 Reverse	Speed	3.51 km/h (2.18 mph)
Gear B-2 Forward	Speed	3.79 km/h (2.36 mph)
Gear B-2 Reverse	Speed	4.39 km/h (2.28 mph)
Gear B-3 Forward	Speed	4.91 km/h (3.05 mph)
Gear B-3 Reverse	Speed	5.67 km/h (3.53 mph)
Gear B-4 Forward	Speed	6.69 km/h (4.16 mph)
Gear B-4 Reverse	Speed	7.74 km/h (4.81 mph)
Gear C-1 Forward	Speed	8.58 km/h (5.33 mph)
Gear C-1 Reverse	Speed	9.91 km/h (6.16 mph)
Gear C-2 Forward	Speed	10.72 km/h (6.66 mph)
Gear C-2 Reverse	Speed	12.39 km/h (7.70 mph)
Gear C-3 Forward	Speed	13.87 km/h (8.62 mph)
Gear C-3 Reverse	Speed	16.03 km/h (9.96 mph)
Gear C-4 Forward	Speed	18.91 km/h (11.75 mph)
Gear C-4 Reverse	Speed	21.86 km/h (13.56 mph)
Rear Tires—16.9-24 R4		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.22 km/h (0.13 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.24 km/h (0.15 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.26 km/h (0.17 mph)

Continued on next page

AG.OUO1032,1418 -19-08JUN99-23/28

Specifications

Item	Measurement	Specification
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.31 km/h (0.19 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.35 km/h (0.22 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.39 km/h (0.24 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.47 km/h (0.29 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.54 km/h (0.34 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.51 km/h (0.32 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.59 km/h (0.36 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.64 km/h (0.39 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.73 km/h (0.46 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.83 km/h (0.51 mph)
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	0.95 km/h (0.59 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	0.98 km/h (0.60 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.29 km/h (0.83 mph)

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AG.OUO1032,1418 -19-08JUN99-24/28

Specifications

Item	Measurement	Specification
Gear A-1 Forward	Speed	1.30 km/h (0.81 mph)
Gear A-1 Reverse	Speed	1.94 km/h (0.93 mph)
Gear A-2 Forward	Speed	1.62 km/h (1.00 mph)
Gear A-2 Reverse	Speed	1.88 km/h (1.16 mph)
Gear A-3 Forward	Speed	2.09 km/h (1.31 mph)
Gear A-3 Reverse	Speed	2.42 km/h (1.51 mph)
Gear A-4 Forward	Speed	2.50 km/h (1.55 mph)
Gear A-4 Reverse	Speed	2.88 km/h (1.79 mph)
Gear B-1 Forward	Speed	3.77 km/h (2.34 mph)
Gear B-1 Reverse	Speed	4.35 km/h (2.70 mph)
Gear B-2 Forward	Speed	4.07 km/h (2.92 mph)
Gear B-2 Reverse	Speed	5.44 km/h (3.38 mph)
Gear B-3 Forward	Speed	6.08 km/h (3.78 mph)
Gear B-3 Reverse	Speed	7.03 km/h (4.37 mph)
Gear B-4 Forward	Speed	8.30 km/h (5.16 mph)
Gear B-4 Reverse	Speed	9.60 km/h (5.96 mph)
Gear C-1 Forward	Speed	10.64 km/h (6.61 mph)
Gear C-1 Reverse	Speed	12.30 km/h (7.64 mph)
Gear C-2 Forward	Speed	13.30 km/h (8.26 mph)
Gear C-2 Reverse	Speed	15.37 km/h (9.52 mph)
Gear C-3 Forward	Speed	17.20 km/h (10.69 mph)
Gear C-3 Reverse	Speed	19.89 km/h (12.36 mph)
Gear C-4 Forward	Speed	23.46 km/h (14.57 mph)
Gear C-4 Reverse	Speed	27.11 km/h (16.86 mph)

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AG.OUO1032.1418 -19-08JUN99-25/28

Specifications

Item	Measurement	Specification
Rear Tires—19.5L-24 R4		
Gear Creeper C-1 Forward— Optional Standard Creeper	Speed	0.22 km/h (0.13 mph)
Gear Creeper C-1 Reverse— Optional Standard Creeper	Speed	0.24 km/h (0.15 mph)
Gear Creeper C-2 Forward— Optional Standard Creeper	Speed	0.26 km/h (0.17 mph)
Gear Creeper C-2 Reverse— Optional Standard Creeper	Speed	0.31 km/h (0.19 mph)
Gear Creeper C-3 Forward— Optional Standard Creeper	Speed	0.35 km/h (0.22 mph)
Gear Creeper C-3 Reverse— Optional Standard Creeper	Speed	0.39 km/h (0.24 mph)
Gear Creeper C-4 Forward— Optional Standard Creeper	Speed	0.47 km/h (0.29 mph)
Gear Creeper C-4 Reverse— Optional Standard Creeper	Speed	0.54 km/h (0.34 mph)
Gear High Speed Creeper C-1 Forward—Optional High Speed Creeper	Speed	0.51 km/h (0.32 mph)
Gear High Speed Creeper C-1 Reverse—Optional High Speed Creeper	Speed	0.59 km/h (0.36 mph)
Gear High Speed Creeper C-2 Forward—Optional High Speed Creeper	Speed	0.64 km/h (0.39 mph)
Gear High Speed Creeper C-2 Reverse—Optional High Speed Creeper	Speed	0.73 km/h (0.46 mph)
Gear High Speed Creeper C-3 Forward—Optional High Speed Creeper	Speed	0.83 km/h (0.51 mph)

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AG,OUO1032,1418 -19-08JUN99-26/28

Specifications

Item	Measurement	Specification
Gear High Speed Creeper C-3 Reverse—Optional High Speed Creeper	Speed	0.95 km/h (0.59 mph)
Gear High Speed Creeper C-4 Forward—Optional High Speed Creeper	Speed	0.98 km/h (0.60 mph)
Gear High Speed Creeper C-4 Reverse—Optional High Speed Creeper	Speed	1.29 km/h (0.83 mph)
Gear A-1 Forward	Speed	1.30 km/h (0.81 mph)
Gear A-1 Reverse	Speed	1.94 km/h (0.93 mph)
Gear A-2 Forward	Speed	1.62 km/h (1.00 mph)
Gear A-2 Reverse	Speed	1.88 km/h (1.16 mph)
Gear A-3 Forward	Speed	2.09 km/h (1.31 mph)
Gear A-3 Reverse	Speed	2.42 km/h (1.51 mph)
Gear A-4 Forward	Speed	2.50 km/h (1.55 mph)
Gear A-4 Reverse	Speed	2.88 km/h (1.79 mph)
Gear B-1 Forward	Speed	3.77 km/h (2.34 mph)
Gear B-1 Reverse	Speed	4.35 km/h (2.70 mph)
Gear B-2 Forward	Speed	4.07 km/h (2.92 mph)
Gear B-2 Reverse	Speed	5.44 km/h (3.38 mph)
Gear B-3 Forward	Speed	6.08 km/h (3.78 mph)
Gear B-3 Reverse	Speed	7.03 km/h (4.37 mph)
Gear B-4 Forward	Speed	8.30 km/h (5.16 mph)
Gear B-4 Reverse	Speed	9.60 km/h (5.96 mph)
Gear C-1 Forward	Speed	10.64 km/h (6.61 mph)
Gear C-1 Reverse	Speed	12.30 km/h (7.64 mph)

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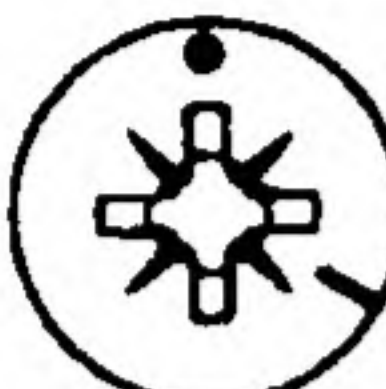

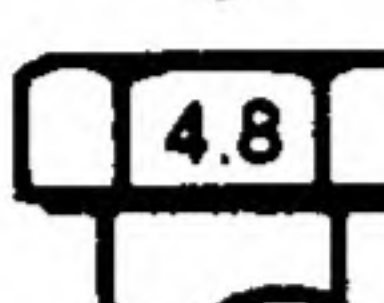

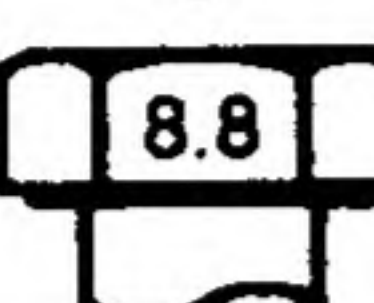

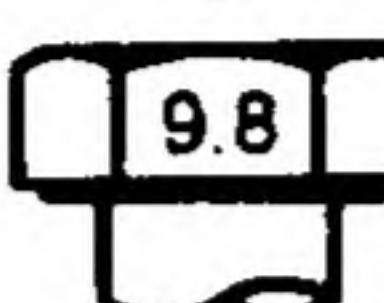

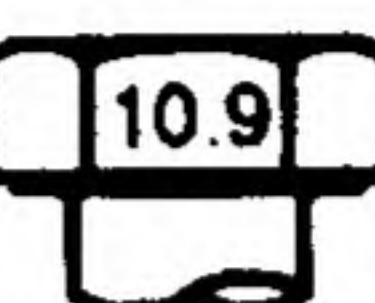







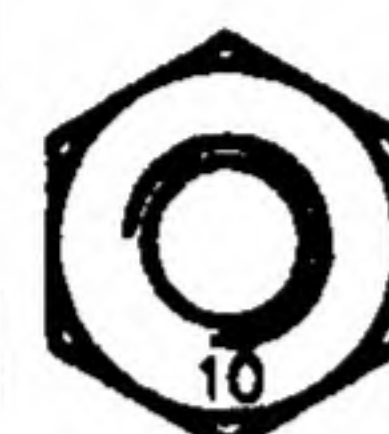
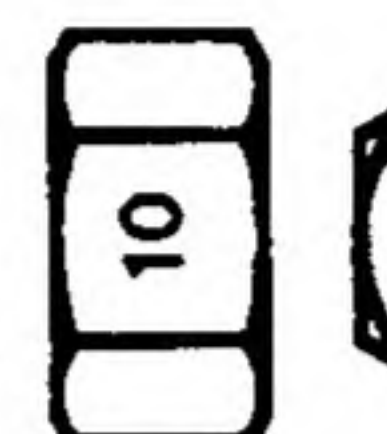
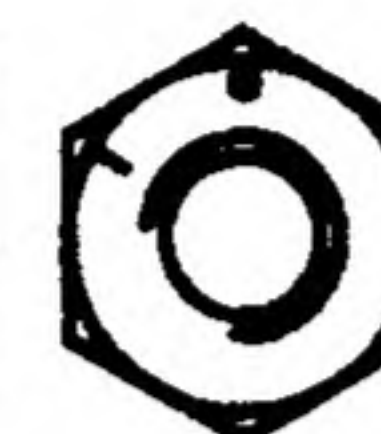






AG.OUO1032,1418 -19-08JUN99-27/28

Specifications

Item	Measurement	Specification
Gear C-2 Forward	Speed	13.30 km/h (8.26 mph)
Gear C-2 Reverse	Speed	15.37 km/h (9.52 mph)
Gear C-3 Forward	Speed	17.20 km/h (10.69 mph)
Gear C-3 Reverse	Speed	19.89 km/h (12.36 mph)
Gear C-4 Forward	Speed	23.46 km/h (14.57 mph)
Gear C-4 Reverse	Speed	27.11 km/h (16.86 mph)

AG,OUO1032,1418 -19-08JUN99-28/28

Metric Bolt and Cap Screw Torque Values

Property Class and Head Markings	<div>4.8</div> <div></div> <div></div> <div></div>	<div>8.8</div> <div></div> <div></div>	<div>9.8</div> <div></div> <div></div>	<div>10.9</div> <div></div> <div></div>	<div>12.9</div> <div></div> <div></div> <div></div> <div></div>
Property Class and Nut Markings	<div>5</div> <div></div> <div></div> <div></div>	<div>10</div> <div></div> <div></div> <div></div>	<div>10</div> <div></div> <div></div> <div></div>	<div>12</div> <div></div> <div></div> <div></div>	

Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a	
	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	255	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

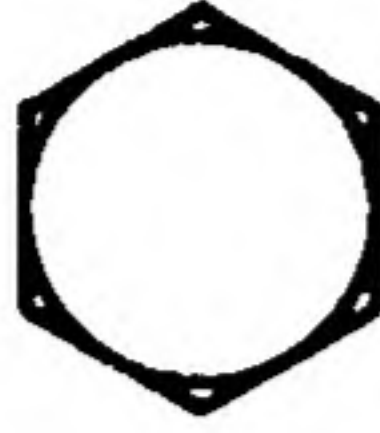

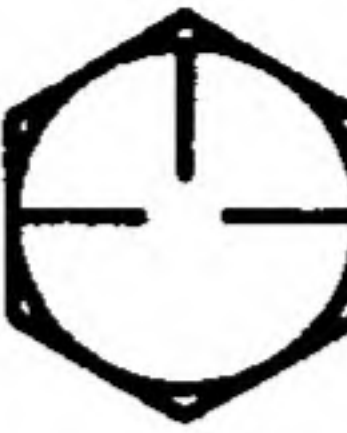



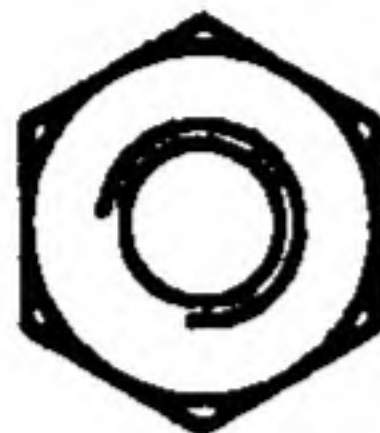




Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

^a "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

Unified Inch Bolt and Cap Screw Torque Values

SAE Grade and Head Markings	1 or 2 ^b 	5 	5.1 	5.2 	8 	8.2 
SAE Grade and Nut Markings	2 	5 			8 	

Size	Grade 1				Grade 2 ^b				Grade 5, 5.1, or 5.2				Grade 8 or 8.2			
	Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a		Lubricated ^a		Dry ^a	
	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft
1/4	3.7	2.8	4.7	3.5	6	4.5	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.5	10	7	12	9	15	11	20	15	25	18	28	21	35	26
3/8	14	10	17	13	22	16	27	20	35	26	44	33	50	36	63	46
7/16	22	16	28	20	35	26	44	32	55	41	70	52	80	58	100	75
1/2	33	25	42	31	53	39	67	50	85	63	110	80	120	90	150	115
9/16	48	36	60	45	75	56	95	70	125	90	155	115	175	130	225	160
5/8	67	50	85	62	105	78	135	100	170	125	215	160	240	175	300	225
3/4	120	87	150	110	190	140	240	175	300	225	375	280	425	310	550	400
7/8	190	140	240	175	190	140	240	175	490	360	625	450	700	500	875	650
1	290	210	360	270	290	210	360	270	725	540	925	675	1050	750	1300	975
1-1/8	400	300	510	375	400	300	510	375	900	675	1150	850	1450	1075	1850	1350
1-1/4	570	425	725	530	570	425	725	530	1300	950	1650	1200	2050	1500	2600	1950
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2150	1550	2700	2000	3400	2550
1-1/2	1000	725	1250	925	990	725	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

^a "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

^b Grade 2 applies for hex cap screws (not hex bolts) up to 152 mm (6-in.) long. Grade 1 applies for hex cap screws over 152 mm (6-in.) long, and for all other types of bolts and screws of any length.

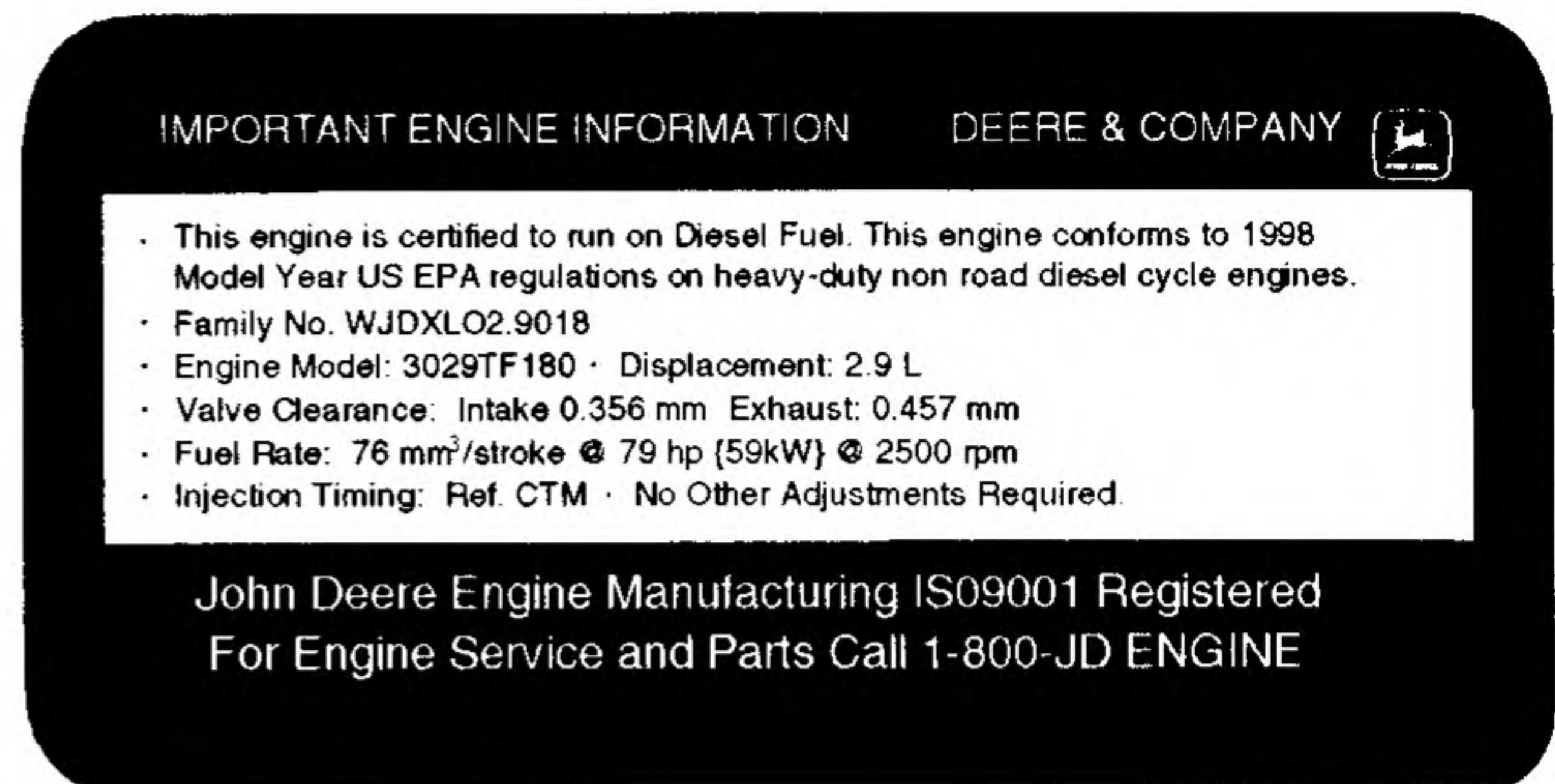
Emissions Control System Certification Label

WARNING: Statutes providing severe penalties for tampering with emissions controls may apply at the user's location.

The emissions warranty described below applies only to those engines marketed by John Deere that have been certified by the United States Environmental Protection Agency (EPA) and/or California Air Resources Board (CARB); and used in the United States in non-road mobile (self-propelled or portable/transportable¹) equipment. The presence of an emissions label like the one shown signifies that the engine has been certified with the EPA and/or CARB. The EPA and CARB warranties only apply to new engines having the certification label affixed to the engine and sold as stated above in the geographic areas governed by the regulating agencies.

NOTE: *The hp/kW rating on the engine emissions certification label specifies the gross engine hp/kW, which is flywheel power without fan. In most applications this will not be the same rating as the advertised vehicle hp/kW rating.*

¹Equipment moved at least once every 12 months.



Sample Emission Label

LV2010 -19-25FEB99

LV,5010SP,H -19-25FEB99-1/1

U.S. Emissions Control Warranty Statement (United States Only)

Emissions control-related parts and components are warranted by John Deere for five years or 3000 hours of operation, whichever occurs first. John Deere further warrants that the engine covered by this warranty was designed, built, and equipped so as to conform at the time of sale with all U.S. emissions standards at the time of manufacture, and that it is free of defects in materials and workmanship which would cause it not to meet these standards within the period of five years or 3000 hours of operation, whichever occurs first.

Warranties stated in this manual refer only to emissions-related parts and components of your engine. The complete engine warranty, less emissions-related parts and components, is provided separately as the "John Deere New Off-Highway Engine Warranty".

LV,5010SP,I -19-25FEB99-1/1

Limited Battery Warranty

NOTE: Applicable in North America only. For complete machine warranty, reference a copy of the John Deere warranty statement. Contact your John Deere dealer to obtain a copy.

To Secure Warranty Service

The purchaser must request warranty service from a John Deere dealer authorized to sell John Deere batteries, and present the battery to the dealer with the top cover plate codes intact.

Free Replacement

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship within 90 days of purchase will be replaced free of charge. Installation costs will be covered by warranty if (1) the unserviceable battery was installed by a John Deere factory or dealer, (2) failure occurs within 90 days of purchase, and (3) the replacement battery is installed by a John Deere dealer.

Pro Rata Adjustment

Any new battery which becomes unserviceable (not merely discharged) due to defects in material or workmanship more than 90 days after purchase, but before the expiration of the applicable adjustment period, will be replaced upon payment of the battery's current list price less a pro rata credit for unused months of service. The applicable adjustment period is determined from the Warranty Code printed at the top of the battery and chart below. Installation costs are not covered by warranty after 90 days from the date of purchase.

This Warranty Does Not Cover

Breakage of the container, cover, or terminals.

Depreciation or damage caused by lack of reasonable and necessary maintenance or by improper maintenance.

Transportation, mailing, or service call charges for warranty service.

Limitation of Implied Warranties and Purchaser's Remedies

To the extent permitted by law, neither John Deere nor any company affiliated with it makes any warranties, representations or promises as to the quality, performance or freedom from defect of the products covered by this warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE ADJUSTMENT PERIOD SET FORTH HERE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON JOHN DEERE BATTERIES ARE THOSE SET FORTH HERE. IN NO EVENT WILL THE DEALER, JOHN DEERE OR ANY COMPANY AFFILIATED WITH JOHN DEERE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages. So these limitations and exclusions may not apply to you.) This warranty gives you specific legal rights, and you may also have some rights which vary from state to state.

No Dealer Warranty

The selling dealer makes no warranty of it's own and the dealer has no authority to make any representation or promise on behalf of John Deere, or to modify the terms or limitations of this warranty in any way.

Specifications

Pro Rata Months of Adjustment

Warranty Code	Warranty Period
A	40 Months
B	36 Months
C	24 Months
<i>NOTE: If your battery is not labeled with a warranty code, it is a warranty code "B".</i>	

DX,BATWAR,NA -19-16APR92-2/2

Identification Numbers

Identification Plates

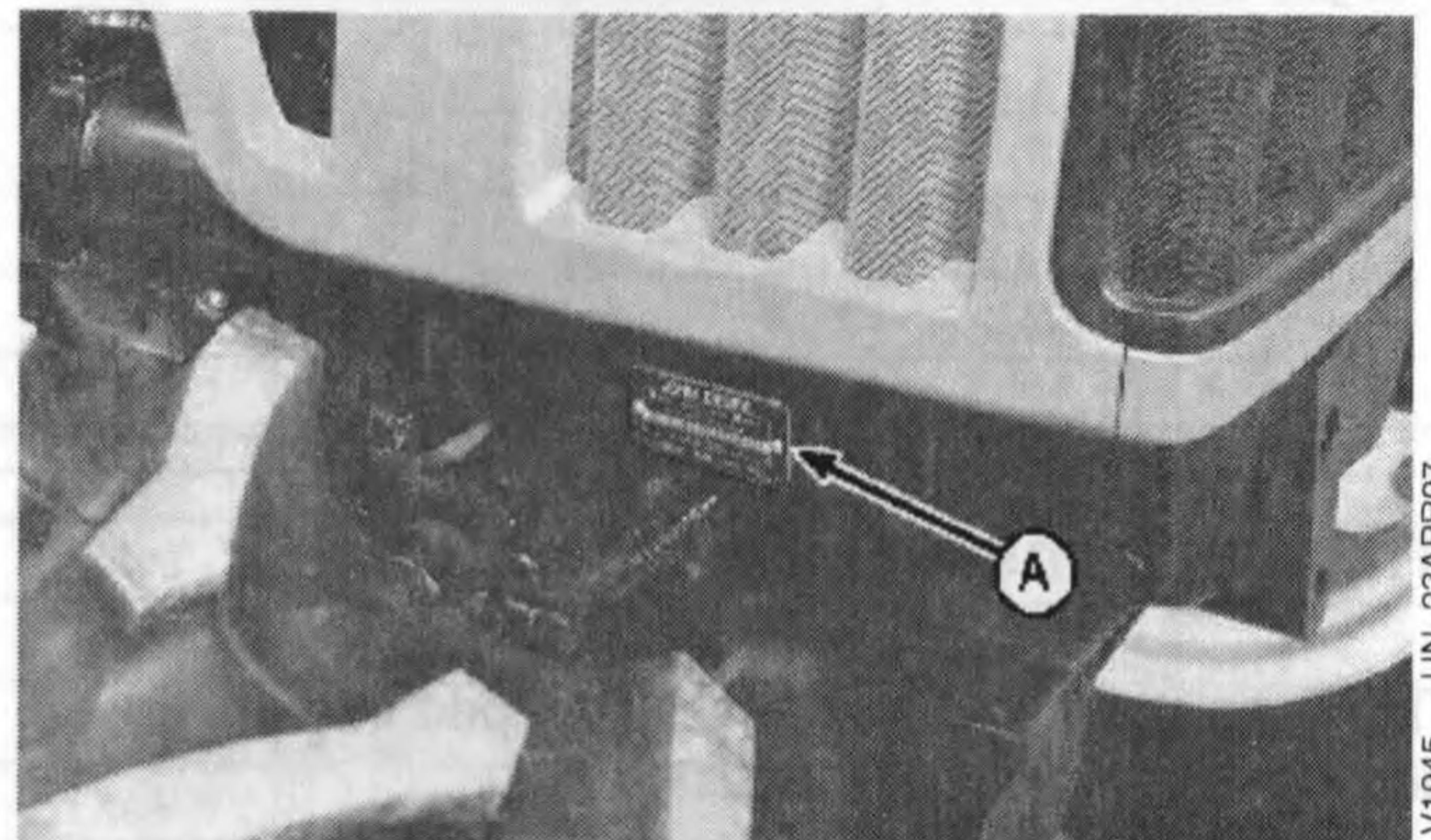
Each tractor has the identification plates shown on these pages. The letters and numbers stamped on the plates identify a component or assembly. ALL these characters are needed when ordering parts or identifying a tractor or component for any John Deere product support program. Also, they are needed for law enforcement to trace your tractor if it is ever stolen. ACCURATELY record these characters in the spaces provided in each of the following photographs.

MX,INIP,A -19-18MAR92-1/1

Record Tractor Serial Number

Serial number plate (A) is located on the right front support member of the tractor.

Tractor Serial Number



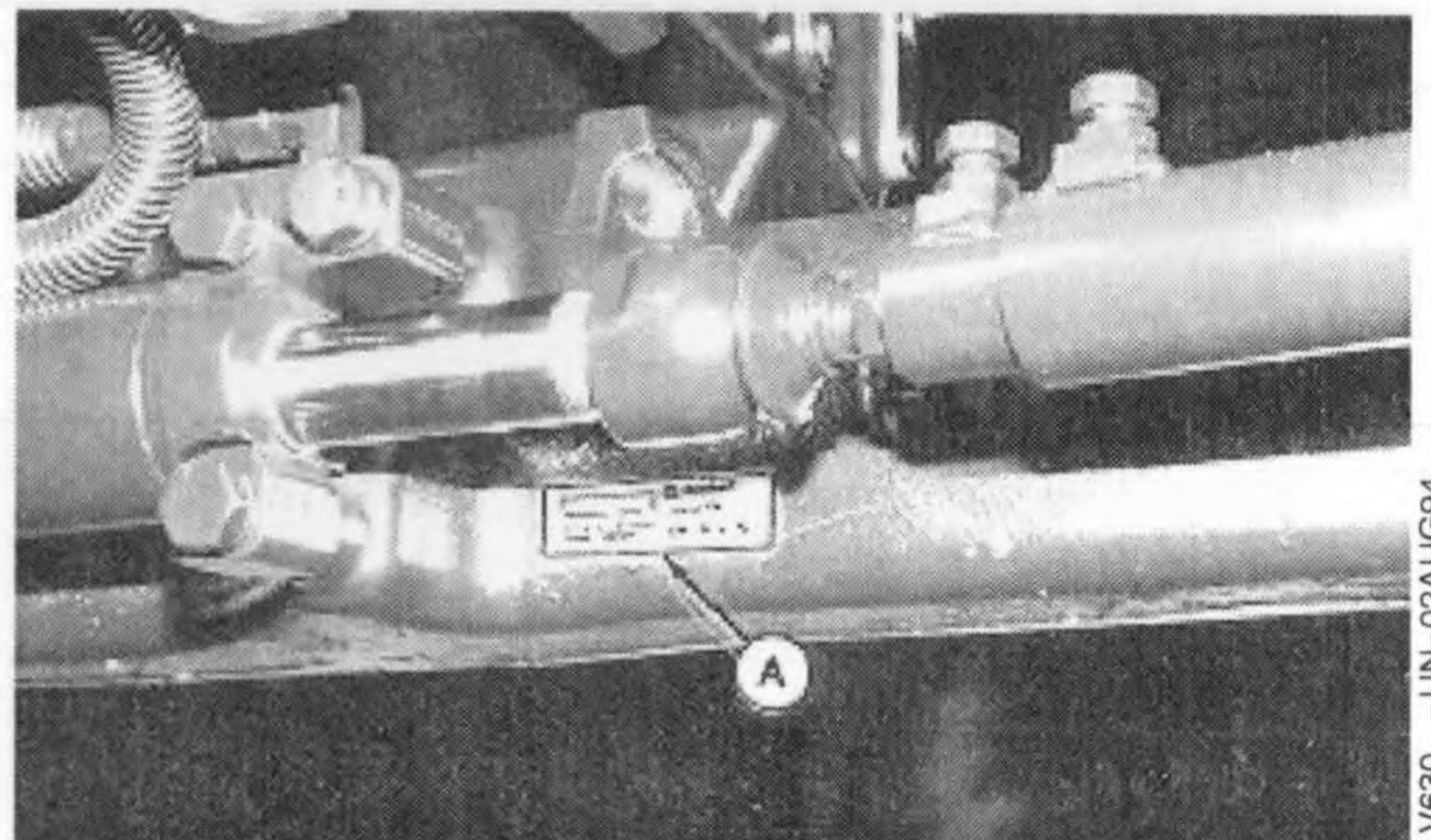
LV1945 -UN-23APR97

LV,5010ID,A -19-03JUN97-1/1

Record Front Axle (2-WD) Serial Number

The front-axle serial number plate (A) is located on rear side of right-hand axle housing.

Front Axle Serial Number



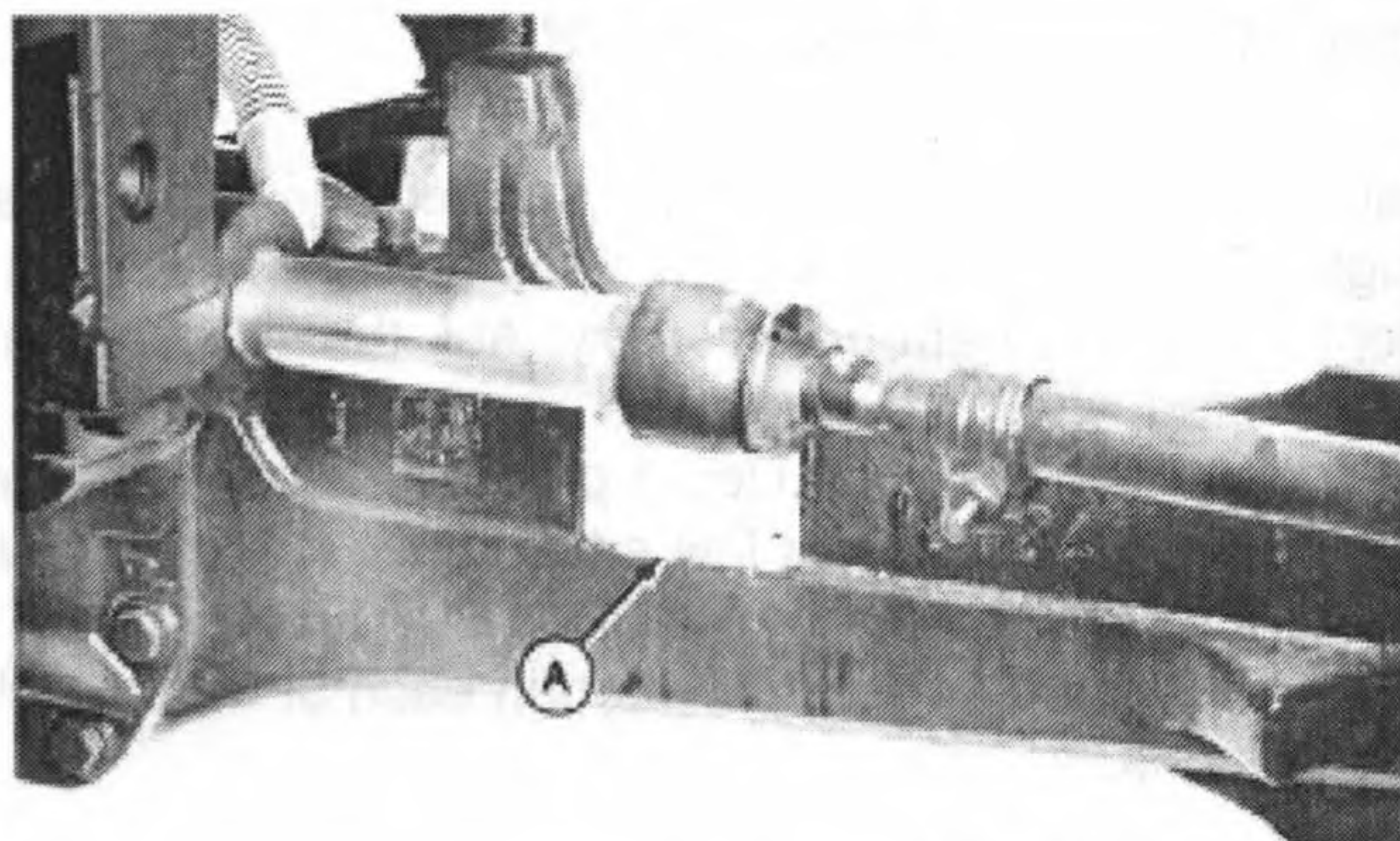
LV630 -UN-02AUG94

MX,INIP,FA1 -19-29JUL94-1/1

Record Mechanical Front Wheel Drive (MFWD) Serial Number

The MFWD serial number plate (A) is located on the rear side of the right-hand axle housing.

MFWD Serial Number _____



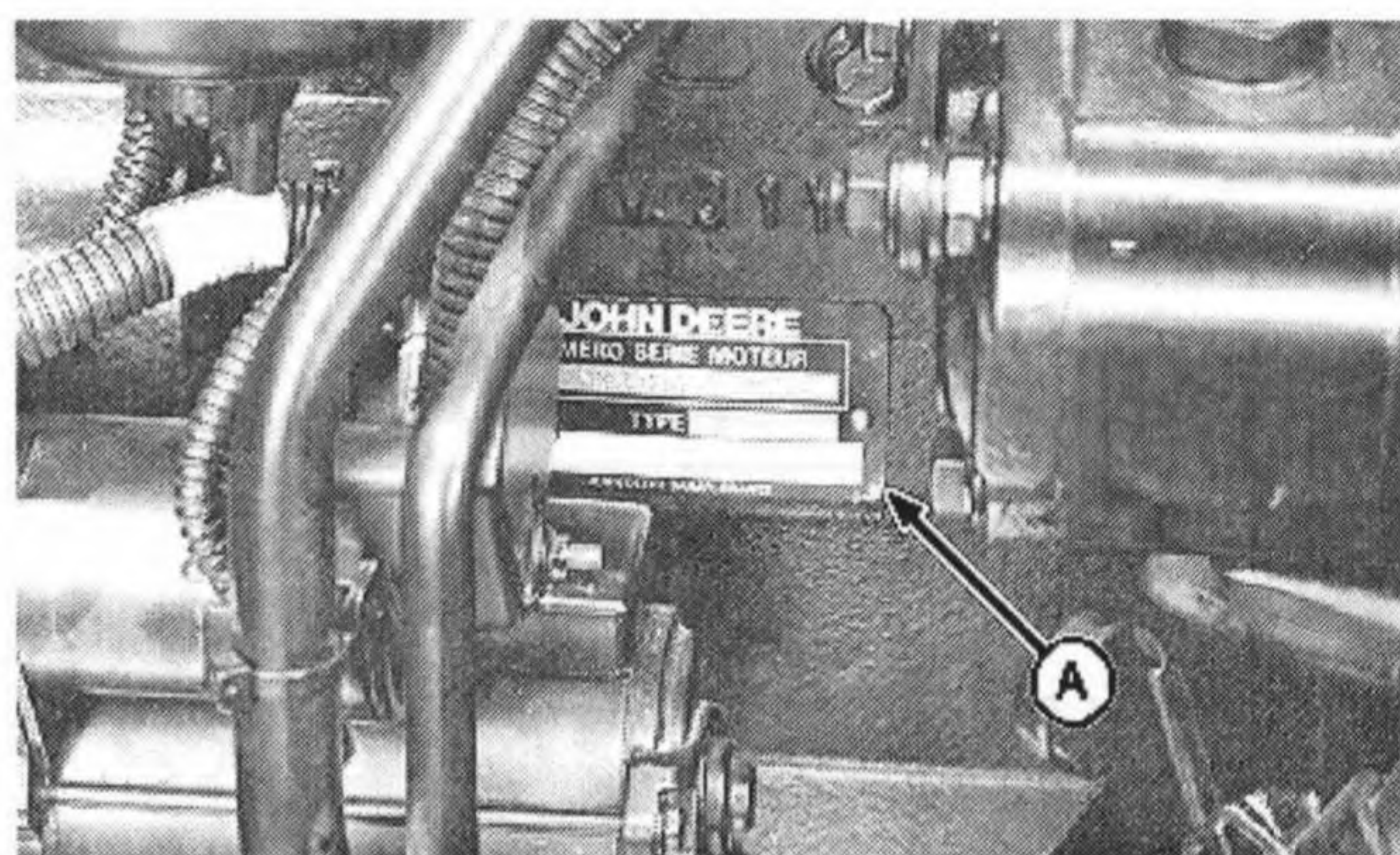
LV099 -UN-21NOV91

MX,INIP,CA1 -19-02AUG94-1/1

Record Engine Serial Number

Serial number plate (A) is located on the right-hand side of the engine block between the starter solenoid and the hydraulic pump.

Engine Serial Number _____



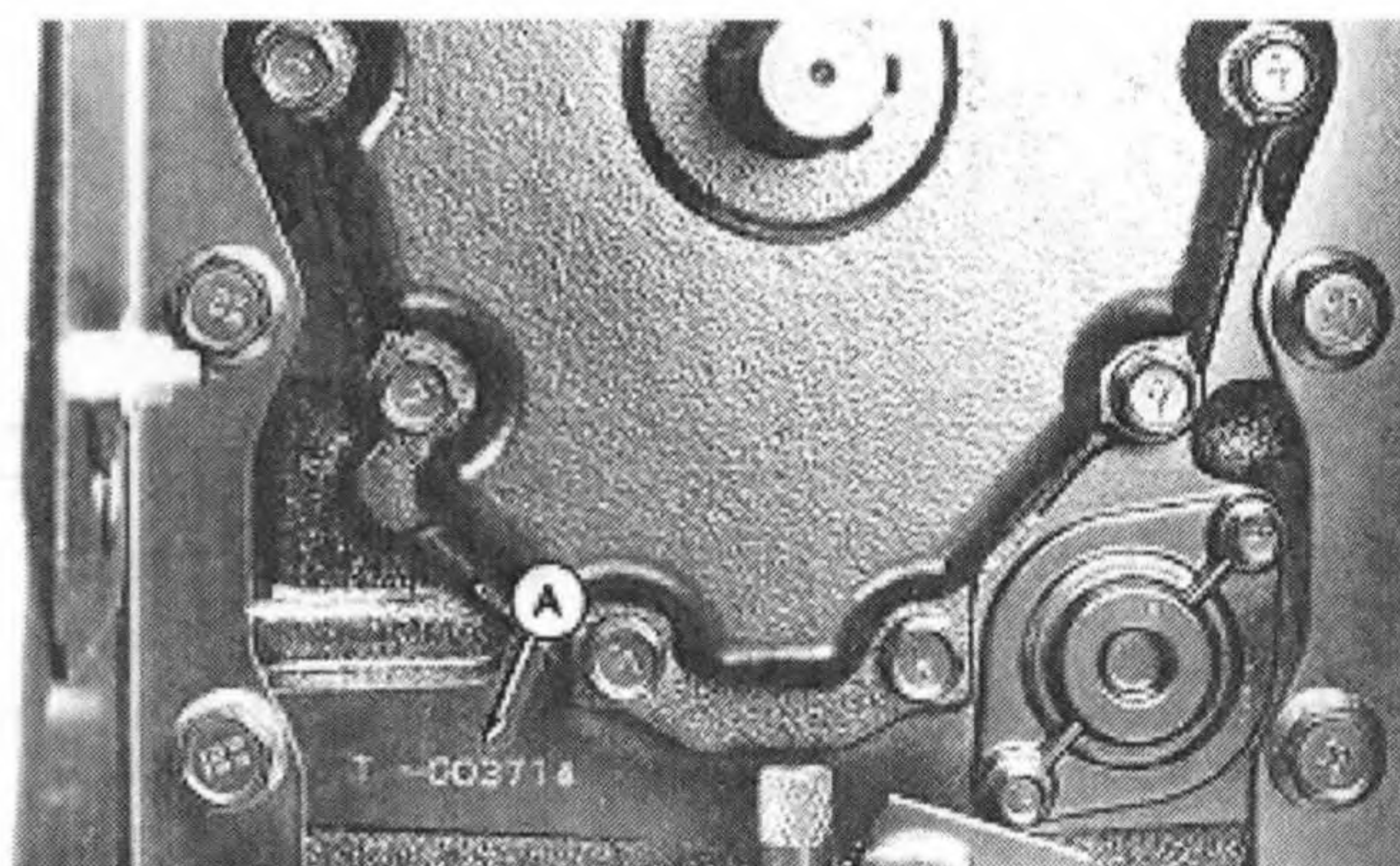
LV1931 -UN-28APR97

LV,5010ID,B -19-03JUN97-1/1

Record Transmission Serial Number

Transmission serial number is stamped into the lower left-hand corner of rear housing (A).

Transmission Serial Number _____



LV629 -UN-17JUN94

MX,INIP,EA1 -19-29JUL94-1/1

Lubrication Maintenance Record Charts

50, 250, 500 Hour Service Chart

Every 50 Hours

- Check transmission-hydraulic system oil level
- Check MFWD axle oil level
- Clean and check battery
- Inspect all tires
- Lubricate front axle pivot pin
- Lubricate steering spindles
- Inspect tractor for loose nuts and bolts

Every 250 Hours

- Change engine oil and filter

- Replace transmission-hydraulic filter
- Service air cleaner
- Inspect and adjust alternator/fan belt
- Lubricate 3-point hitch
- Check neutral start system
- Check clutch pedal free play
- Clean operator enclosure (cab) air filters

Every 500 Hours

- Replace fuel filter

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600 Hour Service Chart

Every 600 Hours

- Change oil in MFWD axle
- Clean crankcase vent tube
- Repack front wheel bearings
- Tighten engine air intake hose clamps
- Check cooling system for leaks
- Lubricate rear axle bearings
- Check engine idle speeds
- Have your John Deere dealer:
 - Adjust engine valve clearance
 - Check front axle pivot pin
 - Inspect fuel injectors

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LV,5010MC,B -19-03JUN97-1/1

1000, 1200 Hour Service Chart

Every 1000 Hours

- Check and adjust valve clearance
- Check engine speeds

Every 1200 Hours

- Change transmission-hydraulic oil and filter
- Clean transmission-hydraulic pickup screen

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LV,5010MC,C -19-03JUN97-1/1

600 Hour Service Chart

Every 600 Hours

- Change oil in MFWD axle
- Clean crankcase vent tube
- Repack front wheel bearings
- Tighten engine air intake hose clamps
- Check cooling system for leaks

- Lubricate rear axle bearings
- Check engine idle speeds
- Have your John Deere dealer:
 - Adjust engine valve clearance
 - Check front axle pivot pin
 - Inspect fuel injectors

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1000, 1200 Hour Service Chart

Every 1000 Hours

- Check and adjust valve clearance
- Check engine speeds

Every 1200 Hours

- Change transmission-hydraulic oil and filter
- Clean transmission-hydraulic pickup screen

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Annual Service Chart

Annually

- Change engine oil and filter
- Replace air cleaner elements

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2000 Hour Service Chart

Every 2 Years or 2000 Hours (Whichever Comes First) • Flush cooling system

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LV.5010MC,E -19-03JUN97-1/1

As Required Service Chart

Service as Required

- Replace fuel filter
 - Drain water and sediment from fuel tank
- Service air cleaner
 - Adjust throttle friction
 - Air conditioning system (Cab)

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Crime Prevention Tips

Help Prevent Crime

You can help take a bite out of crime by properly documenting ownership and discouraging theft.

TAKE A BITE OUT OF
CRIME
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TS140 -19-07OCT88

DX,CRPRV,A -19-03MAR93-1/1

Record AG Identification Numbers

1. Mark your machines with your own unique numbering system.
2. Record the Product Identification Number (PIN) of the machine and also individual component identification numbers for engines, axles, pumps, etc. Include the PIN numbers on all documentation, such as insurance, financial, and warranty papers.

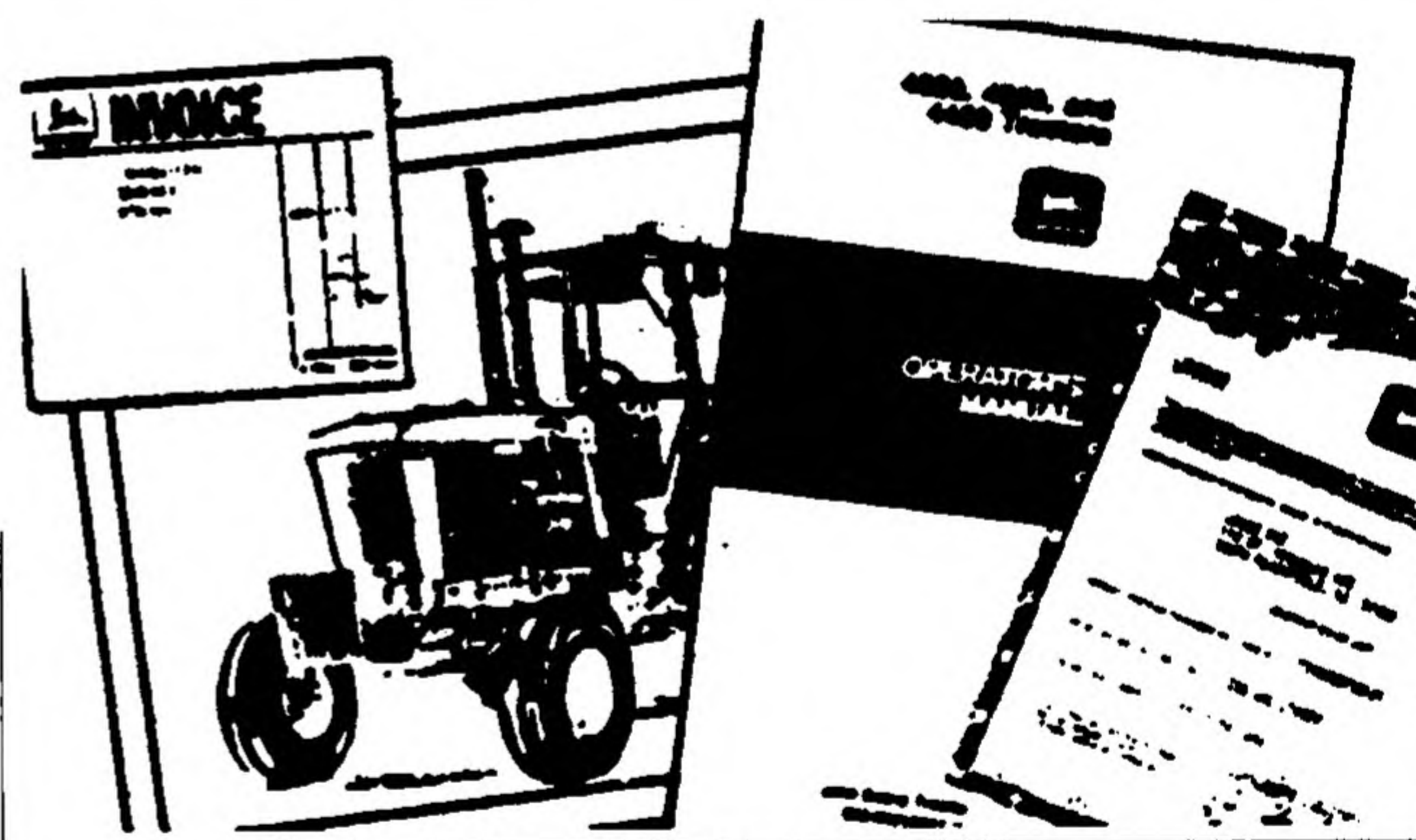


TS161 -UN-23MAR89

DX,CRPRV,B -19-03MAR93-1/1

Keep Proof of Ownership

1. Take color photographs from several angles of each machine.
2. Maintain an up-to-date inventory of all your machines.
3. Keep your documented identification numbers, color photographs, and inventory in a safe, secure location.



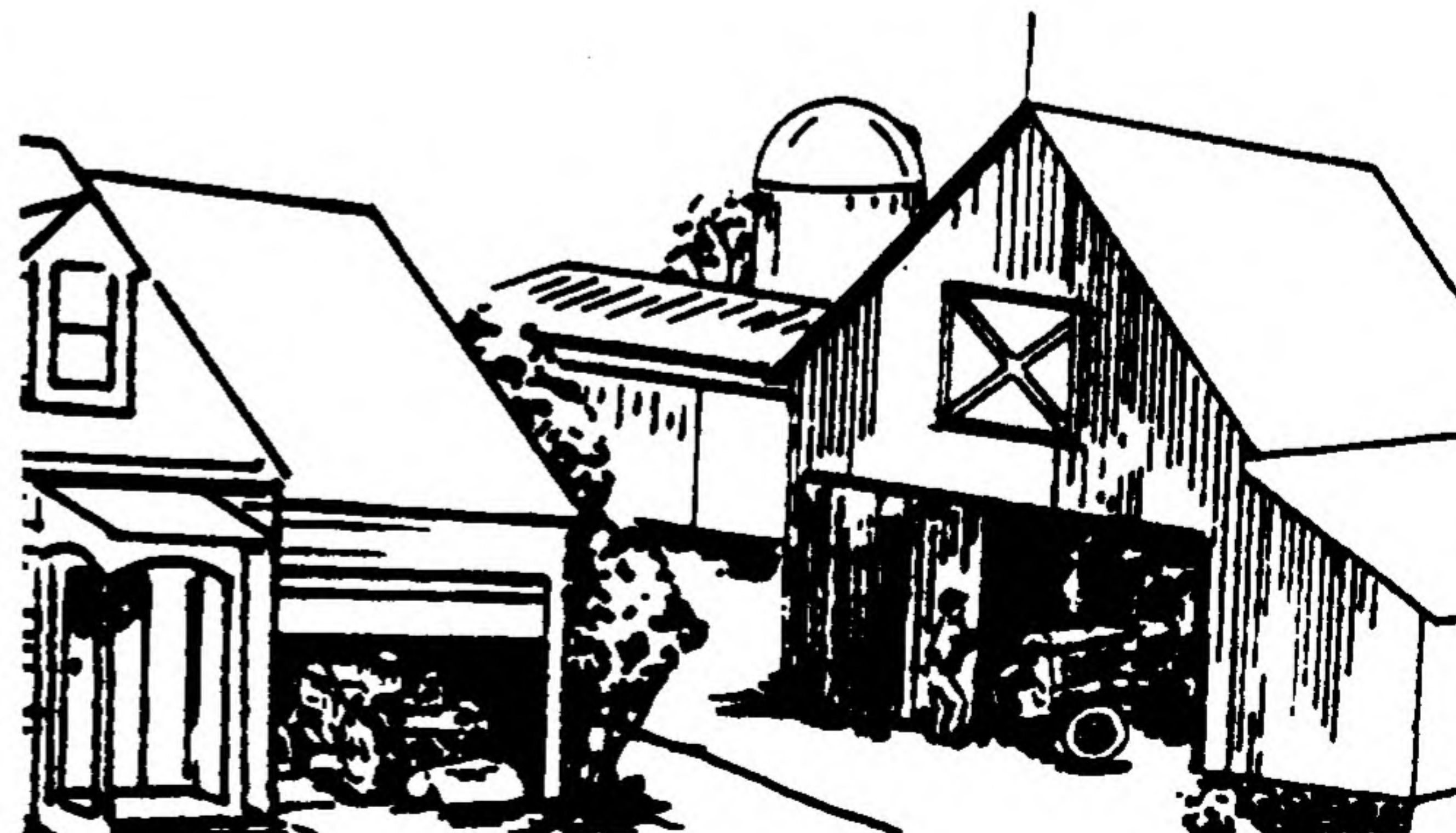
TS142 -UN-23MAR89

DX,CRPRV,C -19-03MAR93-1/1

Park Indoors Out of Sight

Make machines hard to move:

- Park large equipment in front of exits.
- Lower equipment to the ground. Remove key.
- Remove battery when machine is in storage.
- Lock cab doors, windows, and vandal-proof devices.
- Set wheels in widest position making loading more difficult. Lock building.



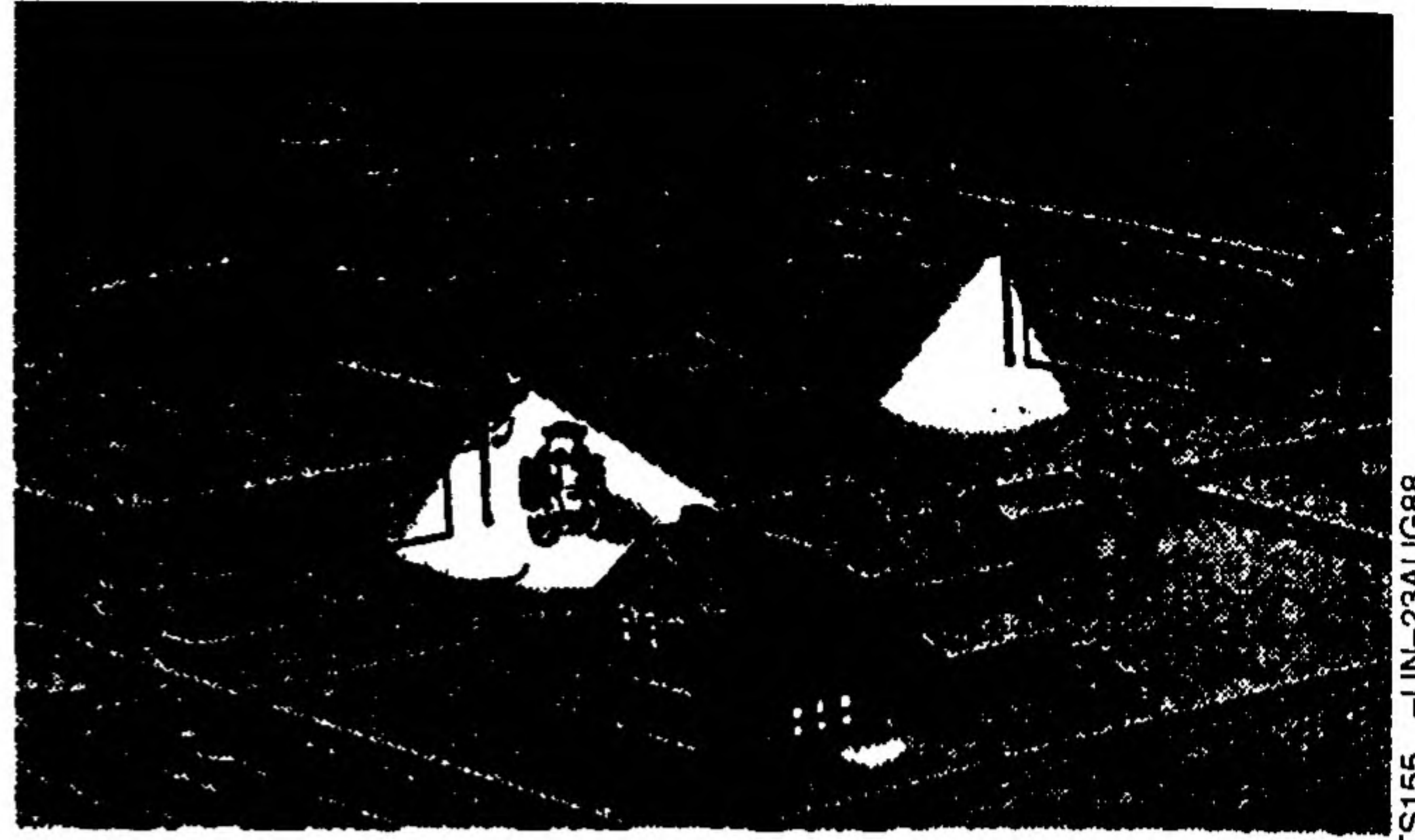
TS143 -UN-23AUG88

DX,CRPRV,D -19-03MAR93-1/1

When Parking Outdoors

Make machines hard to move:

- Park in a well-lighted, fenced area.
- Lower all equipment to the ground.
- Remove ignition key. Remove battery when machine is in storage.
- Lock cab doors, windows, and vandal-proof devices.
- Set wheels in widest position making loading more difficult.

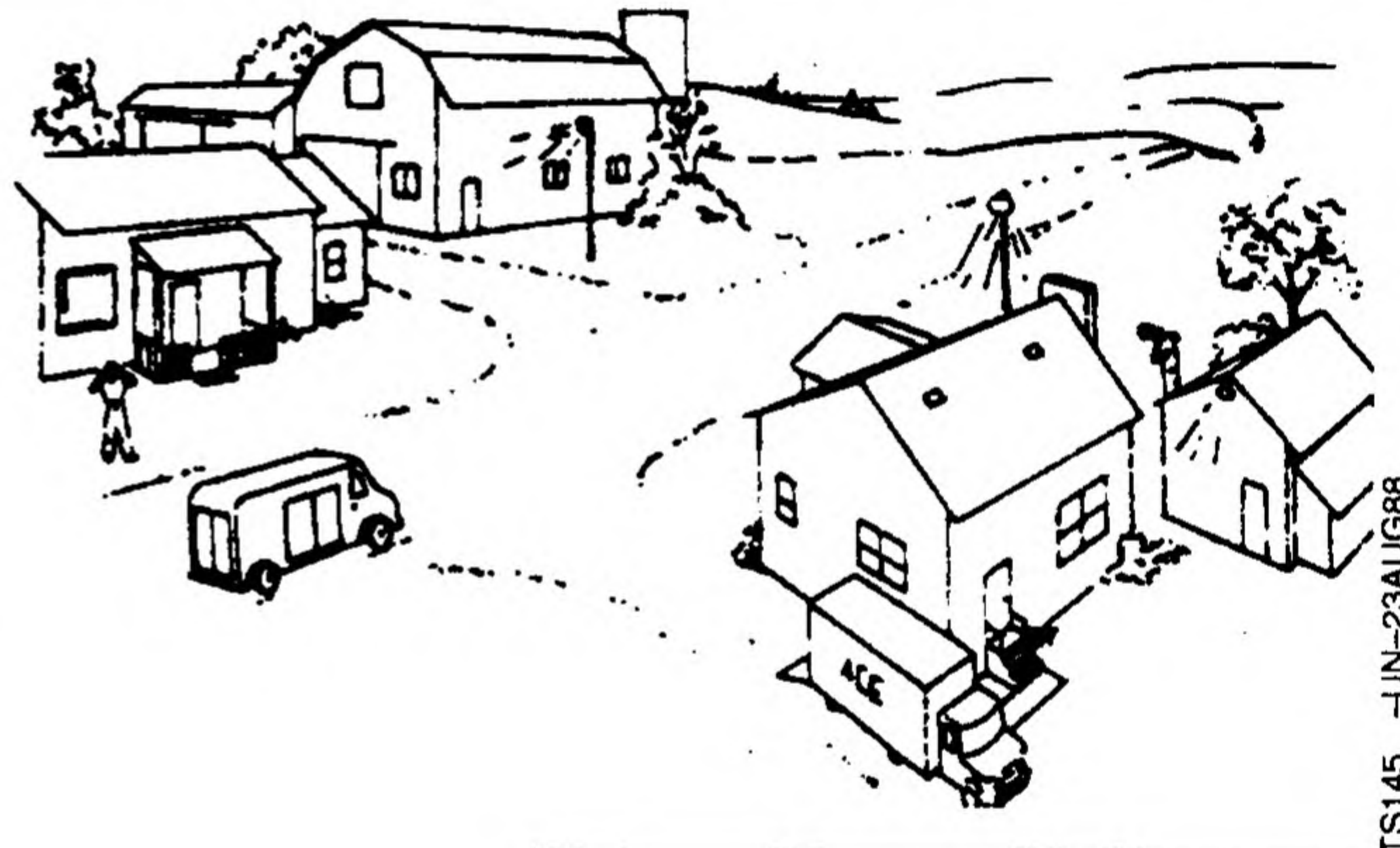


TS155 -UN-23AUG88

DX,CRPRV,E -19-03MAR93-1/1

Reduce Vandalism

1. Install vandal-proof devices.
2. Participate in a neighborhood watch program. Take written notes of suspicious vehicles or persons and report your findings to law enforcement agency.
3. Regularly verify that identification plates have not been removed. If they have, notify law enforcement agency. Order duplicate plates from your dealer.



TS145 -UN-23AUG88

DX,CRPRV,F -19-03MAR93-1/1

Report Thefts Immediately

1. Immediately notify your local law enforcement agency and insurance agent.
2. Provide a complete description of the machine, all of the documented identification numbers and color photographs.
3. Request verification of the identification numbers after they have been entered with any regional or national crime information center. Double check the numbers to be sure they are correct.
4. Notify your John Deere dealer of the theft and request that its loss be posted with full description and identification numbers.



DX.CRPRV.G -19-03MAR93-1/1

TS146 -JUN-09JAN89

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John Deere Service Literature Available

Parts Catalog

The parts catalog lists service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.



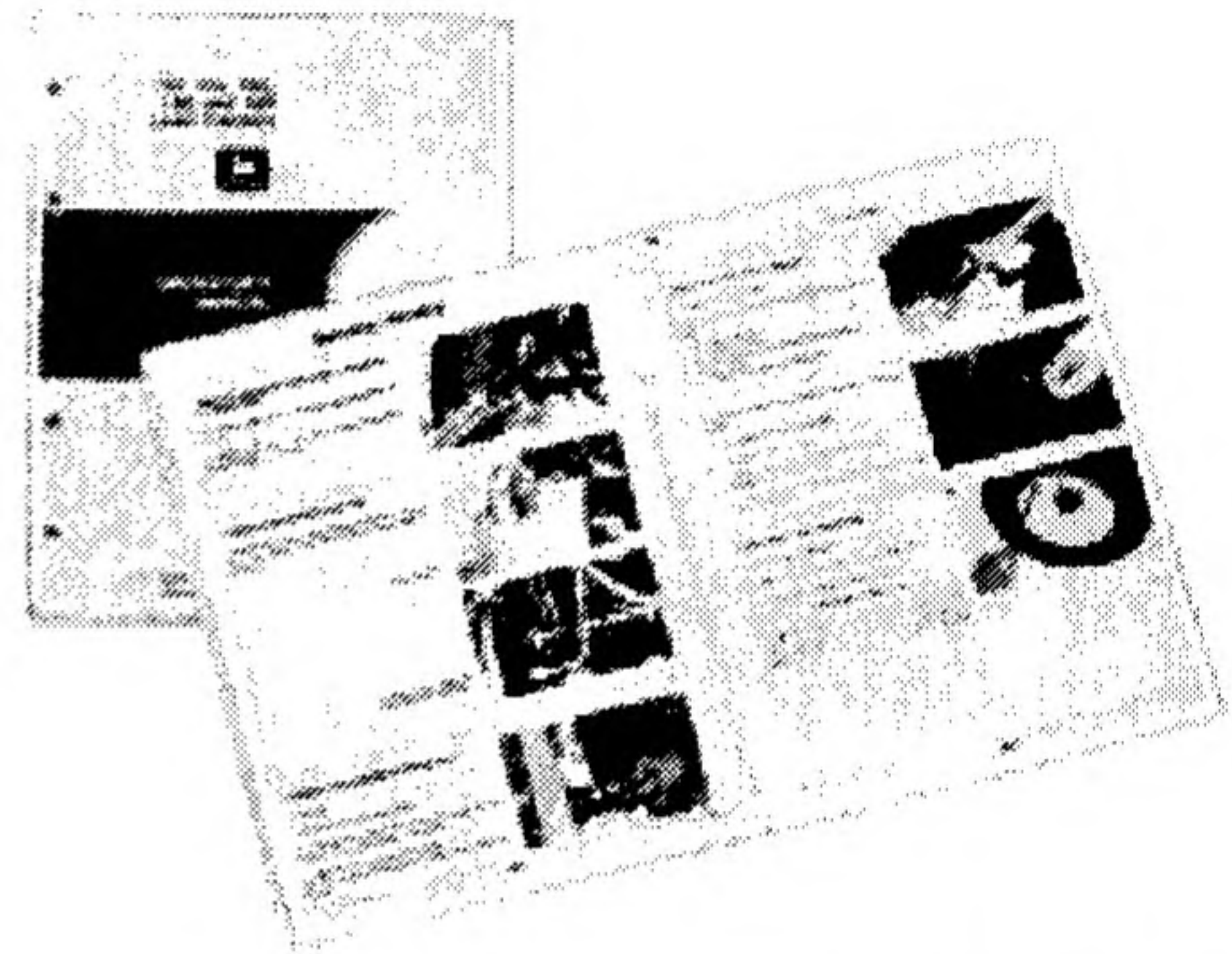
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TS189 -UN-17JAN89

Operator's Manual

The operator's manual provides safety, operating, maintenance, and service information about John Deere machines.

An extra copy of the operator's manual is available. The operator's manual and safety signs on your machine may also be available in other languages.

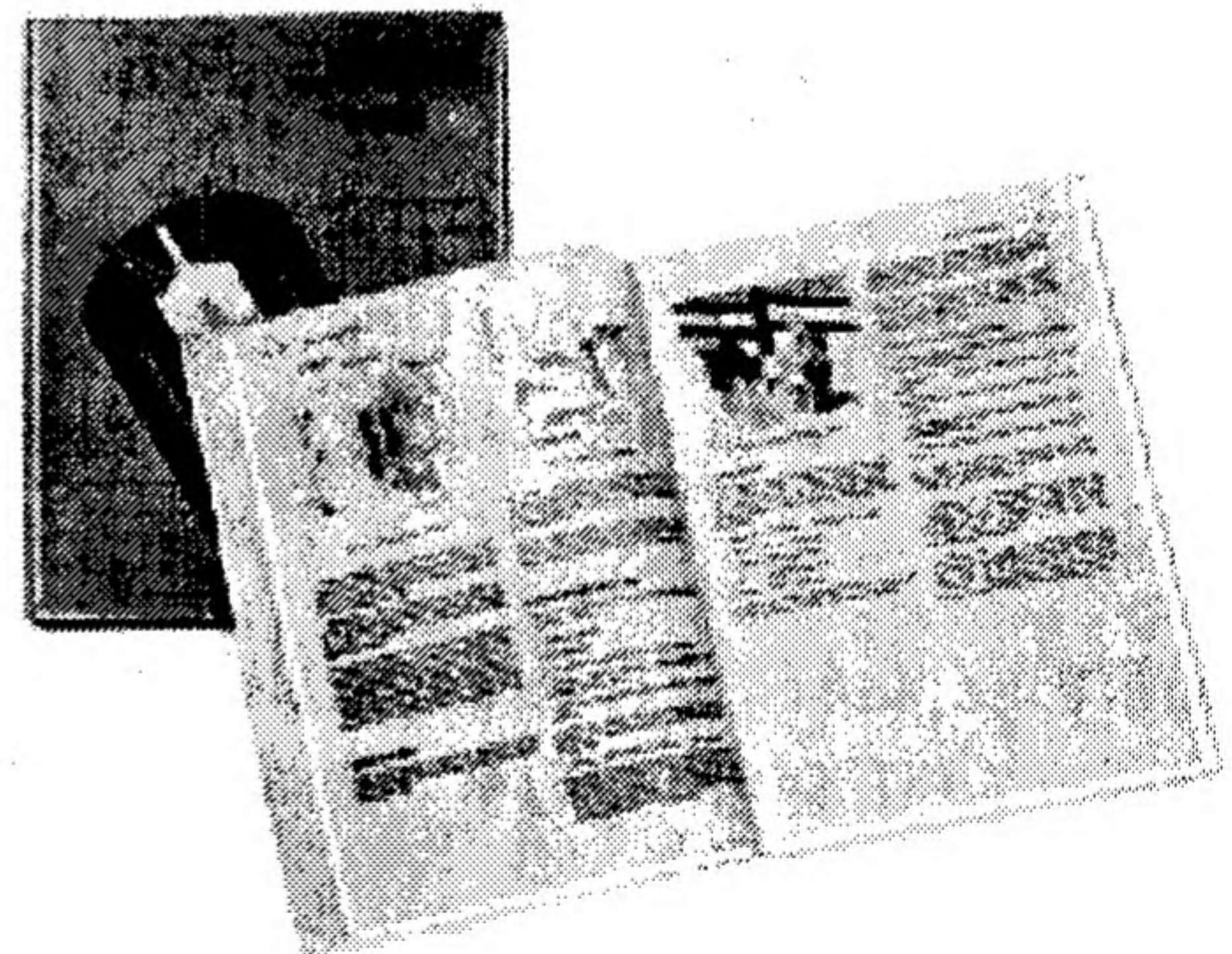


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Fundamentals of Service Manuals

These basic manuals cover most makes and types of machines. FOS manuals tell you how to service machines. Each manual starts with basic theory and is fully illustrated with colorful diagrams and photographs. Both the "whys" and "hows" of adjustments and repairs are covered in this reference library.



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